

103
DEPARTMENT OF DEFENSE APPROPRIATIONS
FOR 1994

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PT. 4

Department of Defense Appropriation...

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BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
ONE HUNDRED THIRD CONGRESS
FIRST SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF DEFENSE

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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1994

WEDNESDAY, MAY 12, 1993.

ARMY PROCUREMENT PROGRAMS

WITNESSES

LIEUTENANT GENERAL WILLIAM H. FORSTER, USA, MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

MAJOR GENERAL JAY M. GARNER, USA, ASSISTANT DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS, FORCE DEVELOPMENT

MAJOR GENERAL RONALD V. HITE, USA, DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning, the Committee considers all Army procurement appropriations with the exception of ammunition. The principal witness is Lieutenant General William H. Forster, Military Deputy to the Assistant Secretary of the Army (Research, Development, and Acquisition). He is accompanied by Major General Jay M. Garner, Assistant Deputy Chief of Staff (Operations and Plans, Force Development) and Major General Ronald V. Hite, Deputy for Systems Management, Office of the Assistant Secretary of the Army (Research, Development, and Acquisition). General Forster, we welcome you back before the Committee. We will insert your prepared statement in the record. Please briefly summarize it and then we will proceed to questions.

This hearing is closed because of the classified nature of the material to be discussed.

SUMMARY STATEMENT OF GENERAL FORSTER

General FORSTER. I would like to insert my statement in the record. At the R&D hearing, I gave a quick overview of the Army modernization vision and some of the key programs associated with that, so I will not repeat it.

I have four charts for reference. They are there for your reference.

The overriding issue that we considered as we went through the ramp-down in the previous year's budget to President Clinton's budget has been to keep a balance within our program across those five capabilities that we have to have, to be able to project and sus-

tain the force, to be able to protect our soldiers, win the battle of information war, keep our commanders informed and the enemy uniformed, and conduct precision fires throughout the battlefield in order to dominate the maneuver battle.

All of our programs fit within the context of one of those five capabilities.

Our intent is to stay balanced. We have to be good enough to do each of those five objectives. We would like to have great new starts and new equipment coming on line in each area.

We can't afford that so you will see a mixture of modifications and new production for a couple of things, but in general, we have tried to stay balanced.

I would ask that the Committee consider that in their mark-up.

Mr. MURTHA. We appreciate that. Any other statements?

General FORSTER. No, sir. That is all.

[The statement and charts of General Forster follow:]

STATEMENT OF
 LTG WILLIAM H. FORSTER
 MILITARY DEPUTY TO THE
 ASSISTANT SECRETARY OF THE ARMY (RDA)
 ARMY PROCUREMENT
 FY94

Mr. Chairman and Members of the Committee, thank you for the opportunity to appear before you to discuss the Fiscal Year 1994 (FY94) procurement budget request of the United States Army. It is an honor for me to represent the Army leadership, the 30,000 civilian and military professionals of the Army acquisition work force, and the soldiers that benefit from modern, reliable warfighting systems. At the outset, I would like to thank you for the strong support you have given Army procurement programs in the past.

This year we again see the total budget for the Department of Defense (DoD) and the Army in decline. Our adjusted budget request for FY94 totals \$60.7 billion, of which 11 percent (\$6.8 billion) is allocated for procurement. Just three years ago, the Army projected its FY94 program at \$98.3 billion and we were expecting \$18.7 billion in procurement funding. The impact of a more than 60 percent reduction in our procurement program has been significant. We have arrived at a delicate balance among size, readiness, and modernization.

Our Chief of Staff, General Gordon Sullivan, has stated that President Clinton's FY94 budget request will allow us to fulfill our obligations with "prudent risk." I agree wholeheartedly that reductions below President Clinton's proposed budget would severely limit our capability to do what is expected of us. Under this budget we will get significantly smaller, but we will maintain slow but steady modernization, while remaining fully trained and ready.

In these times of austerity, we remain committed to one enduring principle: the Army's ultimate purpose is to fight and win our nation's wars. Notwithstanding fewer resources, our smaller Army of the future must be more versatile, yet as capable as in the past. We realize that a large part of our success in the past has been derived from the successful application of America's technology. Our procurement budget for FY94, and our program for the outyears, strives to build on that success.

In many respects, the world today is more complex, uncertain, and volatile than during the Cold War. And from this, the check list of Army missions and responsibilities grows longer and includes the new challenges of worldwide disaster and humanitarian relief and peacekeeping operations. Secretary of Defense Aspin has outlined four dangers that we face post-Cold War. Our principal military concern in this era is the threat to stability in key regions throughout the world. We have seen aggression in Iraq; ethnic and religious civil wars in Bosnia; and anarchy in Somalia. None of these regional conflicts threaten our national survival, but they do threaten our national interests, our allies, and millions of our fellow human beings. We must, therefore, be able to use our forces for peacekeeping and humanitarian missions, while maintaining without question our ability to reach trouble spots quickly and with overwhelming combat power in order to deter or defeat aggression.

The second danger to the international security environment is the proliferation of nuclear and other weapons of mass destruction. While we have long recognized the inherent dangers in the spread of these weapons and technologies, we are increasingly concerned about the growing number of countries that are developing or acquiring this capability. There exists no guarantee that countries will abide by nuclear arms control agreements. North Korea's decision to withdraw from the non-proliferation treaty is a prime example.

The third danger is the possible reversal of democratic reforms in Russia, Ukraine, and other nations that have formed as a result of the breakup of the Soviet Union. If these new democracies fail, hostile,

authoritarian regimes may return along with prolonged internal violence and suffering. Democracy has spread around the globe, and we must work to ensure its success. An additional concern here is the transnational aspects of long suppressed ethnic, nationalist, and religious strife that can spread across present boundaries and further destabilize new democracies.

The fourth danger is the long-term threat that a weak American economy poses to our security. President Clinton has stressed that America's economic strength is central to its security. Slow economic growth and a growing deficit threaten our economic strength. Security, which includes a quality Army, depends on growth and productivity in the private sector. Therefore, economic security is essential.

In this changing and truly uncertain world environment, a well-trained, smaller Army must maintain the overwhelming modernization advantage we have had to ensure land force dominance over potential adversaries. The smaller our Army becomes, the more modern and technologically overmatching it must be. Because people live on land, wars must be won on land. Land force dominance will always be required to deter or to win decisively, swiftly, with minimum casualties.

To achieve this land force dominance, the Army's modernization strategy places priority on five areas where the Army must maintain a decisive edge. These five modernization areas are:

- o Project and Sustain the Force
- o Protect the Force
- o Win the Battlefield Information War
- o Conduct Precision Strikes throughout the Extended Battlefield
- o Dominate the Maneuver Battle

Let me explain each area and highlight the key procurement systems required to maintain our decisive edge.

Project and Sustain the Force. The capacity to deploy highly lethal forces rapidly on short notice is required for success in any modern operation. These forces demonstrate U.S. resolve, provide deterrence, protect critical ports and airfields, and provide the combat capability to ensure a decisive victory. We are rapidly becoming a Continental United States (CONUS) based Army with an ever more global mission. To be effective and credible, our CONUS-based Army must be able to project and sustain its forces anywhere in the world. The limiting factor to attaining this objective is air and sea lift. The Army supports the C-17 and Sea Lift programs of its sister Services while working to make our forces more deployable.

The Armored Gun System (AGS), a highly deployable direct fire weapon, continues in Engineering and Manufacturing Development (EMD) in FY94. AGS will replace the M551A1 Sheridan and provide direct fire support to light forces when timely deployment of Abrams and Bradley equipped armored forces may not be feasible.

Javelin, which will complete development and begin (low rate) limited production in 1994, is a man-portable, anti-tank system that will feature fire-and-forget technology and twice the target acquisition and engagement range of the Dragon missile it replaces. There is no comparable system fielded in the world today. Javelin's top attack capability and tandem warhead will defeat any known conventional or reactive armor.

Our forces, when deployed, must be fully supported. This support must be integrated with the combat forces and provide efficient distribution of critical materiel and supplies while minimizing air and sea lift requirements. Combat service support procurement programs focus on improving the Army's tactical transportation and distribution capability. Multiyear procurement continues during FY94 for HMMWV and the Family of Medium Tactical Vehicles (FMTV). This family of diesel powered trucks in the 2-1/2 ton and 5 ton payload classes, built on a common chassis, perform unit mobility and other missions in combat, combat support, and combat service support units. For the Family of Heavy Tactical Vehicles (FHTV), FY94 funding supports full rate production of the Palletized Load System (PLS) which significantly upgrades the local and long haul capabilities of

combat service support units and the ability to resupply artillery units, while reducing manpower requirements. The PLS, with its versatile flatrack, self-loading system, solves a number of ammunition resupply problems for us and is our largest procurement request for FY94.

Protect the Force. Our enemies will learn from Desert Storm and acquire modern technology and the skills to use it. Protecting U.S. forces has always been important to us, is critical now, and will be even more so in the future as our smaller force faces more devastating weapons. Air Defense is critical, particularly defense against theater ballistic missiles (TBMs) and cruise missiles. Even with the best Air Force in the world protecting us from air strikes, the Army still must protect airfields and its own forces from the terror of surface-to-surface missiles (SSMs) with chemical, biological, or large conventional warheads. As we observed in Desert Storm, missile defense will be required in any foreseeable contingency to protect critical airfields, ports, maneuver forces, and population centers. An effective counterfire capability is also required to destroy enemy TBM launchers before launch as well as counter artillery forces. As engagement ranges increase and we choose to fight more and more at night, combat identification through passive and non-passive means is essential to identify friend from foe in all conditions. Finally, we must retain the capability to operate in a chemical or biological warfare environment.

The Patriot Quick Response Program (QRP) consists of improvements to Patriot that will increase the defended area of this combat proven anti-TBM system. These improvements include radar enhancements, remote launch, and emplacement enhancements. The Patriot QRP resulted in the fielding of one battalion this past year. This unit rotated to Southwest Asia last March.

Air defense procurement continues in the FY94 budget with the multiyear procurement of Avenger. This weapon system consists of a launcher/carrier with a basic load of eight ready-to-fire Stinger missiles and a .50 caliber machine gun. The Avenger is mounted on the HMMWV and is the critical component of the Forward Area Air Defense System (FAADS) modernization effort. It will greatly enhance the air defense of deployed combat forces.

Win the Battlefield Information War. To win on the battlefield, the U.S. Army must, as part of a joint force, plan and conduct operations to destroy, disrupt, and control enemy information flow while ensuring our commanders get accurate information in time to use it. To win this battlefield information war, the Army must have the capability to gather information, process and transmit it around the battlefield quickly while denying any enemy the capability to do the same. We must digitize the battlefield to enable us to pass information on enemy and friendly locations rapidly among our combat forces. Digitization of the battlefield will enable us to maximize sharing of battlefield information for decision support and reporting purposes. Warfighters and command centers can be digitally linked to provide commanders and their staffs with a shared picture of the battlefield and combat crews with more effective situational awareness. Rigorous enforcement of standards will improve compatibility across systems and across Services, providing quantum improvements in real time command and control (C2).

In practical terms, this will allow the RAH-66 Comanche or the OH-58D Kiowa Warrior reconnaissance helicopter to share its sensors' view of the battlefield with artillery fire support elements and with M1A2 Abrams tank and upgraded Bradley Fighting Vehicle crews, allowing direct synchronization of fire and maneuver in real-time--speeding the tempo of the battle while minimizing both overkill and fratricide. All of this is possible through the use of digital systems and common data protocols incorporated into existing and developmental systems.

Research and development (R&D) continues on most Army Tactical Command and Control System (ATCCS) hardware and software, while we begin procurement of some common hardware and control nodes, including the Advanced Field Artillery Tactical Data Systems (AFATDS). A success story within ATCCS is AFATDS. AFATDS will be the first totally automated fire support system to

achieve interoperability with existing field artillery systems and the Airborne Target Handover System/Improved Data Module, other ATCCS nodes, and joint allied systems. It is being developed in successive versions. The program is on schedule. The Initial Operational Test and Evaluation (IOTE) will be held in the third quarter 1994 timeframe with the First Unit Equipped (FUE) to follow one month after IOTE is completed. Fielding AFATDS to the total force is scheduled to begin in FY95.

We continue fielding the Single Channel Ground and Airborne Radio System (SINCARS) in FY94. SINCARS provides commanders with a reliable, easily maintained Combat Net Radio (CNR) with excellent security and Electronic Counter Counter Measure (ECCM) capabilities. In the combat and desert environment of Southwest Asia, it performed exceptionally well.

The communications and electronics equipment procurement also provides funding for communications command and control programs such as Mobile Subscriber Equipment (MSE), which provides the commander with a secure, automatic, highly mobile, quickly deployable, and survivable tactical system to allow communications throughout the division and corps area of operations.

Procurement also continues for the NAVSTAR Global Positioning System (GPS), the joint Army, Navy, and Air Force navigation program used extensively in Southwest Asia. The Army is the predominant Service in the Joint Program Office (JPO) for the manpack/vehicular and low-to-medium dynamic aircraft receivers. GPS provides worldwide navigation, positioning, and timing information to land, sea, air, and space-based users.

Additionally, sensors that locate and identify targets (Short Range-Unmanned Aerial Vehicle), intelligence fusion systems (All Source Analysis System), and long-range "smart" weapons (Army Tactical Missile System) which deny the enemy the capability to locate and attack U.S. forces are essential for decisive operations. Timely and accurate information delivered over great distances and the means to capitalize on it immediately are absolutely critical to our smaller, force projection Army.

Conduct Precision Strikes throughout the Battlefield. To conduct synchronized, decisive operations, the Army must strike and destroy enemy forces throughout the battlefield; laterally, in close, and well forward of friendly forces. To do this responsively the Army must have modern artillery, attack helicopters, and missile systems with the requisite range and munitions. The munitions suite must include munitions that defeat moving vehicles as well as munitions to destroy high priority, short dwell targets such as tactical missile launchers and enemy air defenses. Against moving enemy maneuver formations, the Army must concentrate and coordinate indirect fires along with massed helicopter attacks. Clearly long-range sensors such as Unmanned Aerial Vehicles (UAV) and the Joint Surveillance and Target Attack Radar System (Joint STARS) and their ground stations and effective target development and distribution systems are essential. The Joint STARS Ground Station Module completes its testing this year and we plan to begin initial production. The UAV-Short Range (UAV-SR) with its ground station continues low rate production. Eventually, we will integrate the UAV-SR ground station capability into the Joint STARS ground station to better feed our All Source Analysis System (ASAS). With FY94 procurement dollars, we will continue fielding ASAS Block I to contingency support units. ASAS provides target development and collection management needed to focus joint sensors against high priority targets.

Multiple Launch Rocket System (MLRS) Launcher procurement continues in FY94. MLRS provides the field artillery with the capability to attack deep targets and suppress enemy air defenses. It is a critical force multiplier and offsets threat numerical superiority. Additionally, the MLRS Launcher doubles as the platform for the Army Tactical Missile System (ATACMS). This responsive, long-range fire support system provides the corps commander with a much improved capability to execute deep operations. FY96 is the last procurement year for the highly successful ATACMS. It will be followed by an upgraded ATACMS with longer range. The upgraded ATACMS and the extended range MLRS rocket now in development will continue to use the same MLRS

Launchers.

The Paladin upgraded howitzer completed testing with flying colors recently and is in low rate production; however, a contract for full rate production was awarded earlier this month. The Paladin overcomes many of the operational limitations imposed by the outdated technology of the current M109 howitzer, providing longer range fires and substantially improved survivability through "shoot and scoot" techniques. The initial production of Sense and Destroy Armor (SADARM) begins in FY94. The principal target for this weapon system is enemy self-propelled artillery, but it is effective against other stationary, lightly armored vehicles as well. Paladin, SADARM, ATACMS, and MLRS provide excellent near to mid-term fire support.

Dominate the Maneuver Battle. Decisive operations culminate with the destruction of the enemy's land combat capability. The Army must maintain an overmatching capability in maneuver forces, for here the battle is decisive and the risk to our soldiers is highest. Real-time, combat information and intelligence must be available to maneuver task force commanders. The display of enemy information and friendly locations from digital sensors and data systems facilitates decisive maneuver and greatly reduces fratricide. We must use our advantage in speed and agility to win the direct fire battle with minimum casualties. To do so within our funding constraints requires us to upgrade our existing maneuver systems--the M1 Abrams tank, the M2 Bradley Fighting Vehicle, and the AH-64 Apache helicopter--with digital processors and communications and better target acquisition sensors. This effort will dramatically improve our combat proven maneuver systems by improving the way they fight together as a combined arms team.

Upon completion of initial testing, the Abrams upgrade program was approved last year by the Office of the Secretary of Defense (OSD) and leads this effort. Upgrades to the Abrams tank include position navigation equipment, a commander's independent thermal viewer, and a distributed power and data architecture that allows electronic distribution of target and friendly position data to other M1A2 Abrams and to upgraded Bradleys and Longbow Apaches.

The Longbow fire control radar is being developed for integration into the Apache heavy attack helicopter, and later into the Comanche. The systems central processor will classify targets, establish priorities, and pass the target information to the Longbow Hellfire (radar frequency) missile. The pilot may then engage targets with significantly reduced decision and exposure times. Thus, Longbow increases the rate of Apache engagements while increasing its survivability. Longbow Apaches can also transmit radar and electronic pictures of the battlefield to upgraded Bradleys and Abrams. The Bradley upgrade program was initiated this year to modernize existing vehicles by increasing their survivability and enhancing their lethality, and an R&D program is underway aimed at providing them a digital capability. A late March exercise demonstrated the capability to pass digital data from a Kiowa Warrior to upgraded Abrams and Bradley vehicles.

The OH-58D Kiowa Warrior upgrade program continues in FY94 and it will be the single reconnaissance/light attack/multipurpose helicopter in selected light divisions until the Comanche is available in quantity. Hellfire II (formerly called HOMS) is the optimized version of the highly effective Hellfire laser guided air-to-ground missile for the Apache and the armed Kiowa Warrior. It provides increased lethality and a seeker hardened against electro-optical countermeasures (EOCM), and is all digital (reprogrammable). We have completed development and are scheduled to enter production this month. Hellfire II is the production bridge to the Longbow Hellfire. Both missiles are required on the modern battlefield.

These are the five areas of our modernization vision and how representative major programs fit that vision. Now, let me discuss some general areas of acquisition. We have taken the lead in acquisition

streamlining and restructuring. We have incorporated management initiatives that will allow us to keep our programs on time and on budget much better than in the past. Managers, testers, programmers, and users--Army officials and industry officials--sit down together and work issues on a regular basis until problems are identified correctly, addressed, and fixed. This has significantly improved the way we do business together, has been key to reducing low value added work, and has led to successful problem solving. Let me list a few examples of how we are using Army resources more efficiently.

In late 1990/early 1991, several technical problems, primarily the missile seeker focal plane array (FPA), caused the Javelin program to suffer significant cost growth and schedule slips. The original FPA contractor was unable to produce compliant FPA's within reasonable cost and schedule expectations. We suspended all funding and directed that an alternate source be found. In mid-1991, Santa Barbara Research Center (SBRC) was subsequently identified as the alternate source. SBRC's performance has been outstanding. All FPA assemblies have been delivered on schedule and the contract was completed under cost. All other technical problems have been solved.

The Army successfully completed its source selection process for the New Training Helicopter (NTH) and awarded a procurement contract for the first 102 of 157 helicopters. This was a non developmental item and commercial standards were encouraged wherever feasible. The NTH is a more economical helicopter for training than the UH-1's we now use and provides our flight students with increased training effectiveness. Although this procurement required \$38.7 million more than was initially budgeted, it will save the Army approximately \$64 million each year in operation and support (O&S) costs when fielding is completed in FY96. This savings is almost \$11 million more a year than we originally estimated or more than \$200 million more over the life of the trainer. The Army has reprogrammed a total of \$19.8 million from FY92 and FY93 funds toward meeting the NTH shortfall of \$38.7 million.

We are not only changing our approach to production, but also to the management of fielded systems. Our modernization objectives reflect the Army's intent to provide supportable, effective systems for a balanced, total force capability. We intend to achieve these objectives by allocating scarce resources to improve fielded capabilities with cost effective modifications, to integrate advanced technology into fielded and in production systems to leverage near-term and future combat capabilities, and to acquire new equipment through development programs only when it provides high pay-off, "silver bullet" capabilities. We must continue to provide warfighting capabilities that leverage commercial and other service technology and integrate that technology into our systems, both new and fielded.

The way to capitalize most efficiently on new technology is through Horizontal Technology Integration (HTI). HTI is the simultaneous integration of complementary technology into families of systems that must fight and operate together on the battlefield. For example, we would insert technologies such as combat identification devices and advanced sensors into all elements--tanks, attack helicopters, artillery--that make up our combined arms task forces within a division. The upgrades to digitize Abrams, Bradleys, and Apaches discussed earlier is another example. We would upgrade all relevant equipment in a division before proceeding to upgrade another division--thus an upgraded M1A2 Abrams would fight with upgraded Bradleys and Longbow Apaches. By having these complementary technological capabilities (seeing the same enemy and friendly forces) in every combat system in a unit gives that unit a much greater capability than upgrading all tanks first, then all helicopters, and so on.

We are also spending more effort "up-front" to identify high pay-off opportunities and to determine how to incorporate new technologies and weapons developments into new organizations and doctrine to get the best pay-off. The Army is posturing itself to examine these issues through much

more extensive and realistic modeling and simulation. Our Training and Doctrine Command has established several battle laboratories (Battle Labs) to focus on different battlefield dynamics leading to better requirements and better understandings of how different weapons can fight together. We are implementing the Louisiana Maneuvers (LAM) to link modeling and simulation with field exercises to achieve maximum value in training and in understanding the elements of doctrine, organization, and equipment that must be improved in the future. This will be accomplished using the Defense Simulation Internet (DSI) initiative with our Battle Labs and exercises.

Our overall strategy of fielded technological superiority must mobilize to the fullest extent government, industry, and academic resources. The conversion of industry segments from defense needs to commercial products will reduce the R&D devoted to defense and also reduce the opportunity to integrate technology into equipment in production and in the field. Because of declining budgets, the military will account for an ever smaller percentage of the market. Thus, the commercial market will likely become less responsive to military demands for unique standards and technologies. If the United States is to deploy and maintain military forces with overmatching technological superiority, then DoD will have to make ever more efficient use of available commercial technology, such as technology being developed for advanced aircraft and electronics. We totally support the Administration's emphasis on dual-use technologies, with their potential application in the civilian economy as well as in military systems.

The success of the Army's "Big Five" programs that were started in the 1970's--Abrams, Bradley, Apache, Black Hawk, Patriot--is unquestioned by our adversaries; but it took our Nation nearly two decades of hard work and ample funding to produce those systems and today's fully equipped, trained, and ready Army. As our resources decline, it is vitally important that we make the best possible use of every dollar to maintain this posture and improve it where possible. Our FY94 budget request contains the minimum funds required to do that.

Modernization is the key to tomorrow's readiness. It is imperative that we sustain modernization or our technological advantage over potential adversaries will diminish over time--increasing the risks to our soldiers. With fiscal realities in mind, we must carefully construct our modernization program around the capabilities that have been proven in combat, executing only a very few new development programs of highest priority. With your continued support, we will maintain this balanced program, improving the synergy of our systems and providing our soldiers what is needed to win decisively with minimum casualties.

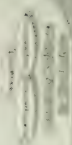
Thank you.



Army Acquisition

LTG William H. Forstner

Military Deputy to the Assistant Secretary of the Army
(Research, Development and Acquisition)



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The Digital Battlefield



HORIZONTAL INTEGRATION

ARMY RDA BUDGET TRENDS

FY93 CONSTANT DOLLARS



SOURCE: SECDEF'S 1995 REQUEST FOR FISCAL YEAR 1996 APPROPRIATIONS
 FROM AMI NEWS RELEASE, 1995 RELEASE MATERIAL

ARMY RDA BUDGET TRENDS

ARMY PROCUREMENT BUDGET REDUCTION

Mr. MURTHA. You note in your statement that the fiscal year 1994 procurement budget is 60 percent lower than it was expected to be just 3 years ago.

I asked the Marine Corps last week what they considered a sustainable procurement budget. They felt they need a billion dollars a year to sustain themselves, and their equipment.

They believe they are below a sustainable procurement rate with the fiscal year 1994 budget.

Do you think you are at a sustainable procurement rate; that the equipment won't deteriorate?

I have said this year that I can only support this budget because we have a residual build-up of spare parts, training and equipment from the buildup of the 1980's and Desert Storm.

We are going to lose that very quickly and have to reduce the tempo of operation if these current budget levels continue.

We haven't reduced the tempo of operation. Is this procurement budget going to keep you at a sustainable level, so that your modernization program or level of equipment will stay at the level you want?

General FORSTER. If we kept the \$6.8 billion over a long period of time, we could sustain. We could not modernize at the pace we would like to and we would have older Cobras and Hueys in the fleet for a long time that you couldn't replace.

We could, in fact, do measured modernization at about \$6.8 billion a year procurement.

Mr. MURTHA. I have to assume then that you have to have the O&M money because of the need for spare parts, and making sure equipment is kept up to date.

General FORSTER. That is correct.

\$6.8 billion wouldn't necessarily be a smart way to do business because you are adding O&M, but we could sustain ourselves at this level.

Mr. MURTHA. What is the figure that you feel more comfortable with for procurement? What programs did you have to cut out that you would feel more comfortable if they were in?

We are going to try next year to give everybody a \$50 a month pay increase for the active duty people.

I know for the lower ranks that means something. For the higher ranks, it doesn't mean a lot. But I feel it is important to send a signal to these folks that we appreciate what they are doing.

I don't know if we will be able to work it out. That will take a billion dollars. We started out going up to E-5 and one of the artillery guys complained about the difference between E-5 and E-6 would narrow.

I felt this was fair. So I guess you are saying that you can get by this year. You feel like you can get by the next year as long as you keep it at this level?

General FORSTER. That is what I am saying. That is based on the force structure that we would expect to have and that does not modernize us in a hurry. We keep older equipment around longer. We don't upgrade the truck fleet as fast as we would like.

You put more money into O&M to sustain those things.

ARMY AIRCRAFT GIVEN TO ISRAEL

Mr. MURTHA. Let me ask you about the Black Hawks and Apaches that you gave to Israel.

As I understand it, 10 Black Hawk helicopters and 24 Apache helicopters will be taken out of the Army inventory and given to Israel, without reimbursement.

What is the status of those transactions?

General FORSTER. Sir, we are holding the aircraft and preparing them for transfer as the final agreement and the paperwork is worked out.

Mr. MURTHA. Does that cause any readiness problems within the Army?

General FORSTER. Not readiness so much. For example, the 10 Black Hawks that will be given away, if they are not replaced, that is almost the equivalent of one Medivac unit.

Mr. MURTHA. Are these excess helicopters?

General FORSTER. No, sir. They are out of hide.

Mr. MURTHA. So you will have to replace the helicopters?

General FORSTER. We would like to, but I can't tell you that they would make the priority list.

Mr. MURTHA. You are saying we will be short those helicopters because you don't have money in your procurement budget this year to replace them? Is that what you are saying?

General FORSTER. Yes, sir. It means that we will keep more Hueys and more Cobras in the fleet to fill out those units where the Apaches and Black Hawks would have gone.

Mr. MURTHA. Is the line going cold with the Apaches at this point?

General FORSTER. Yes, sir.

Right now if there are no additional foreign military sales or procurement on our part, we would expect to deliver the last Apache about the middle of 1995, which is a problem because that causes a gap before we would expect first delivery of the remanufactured, upgraded Longbow Apache in 1997.

Mr. MURTHA. With the services coming down so dramatically, the Army has lost more people than anyone else. Is it just your front-line divisions that have Black Hawks and Apaches?

General FORSTER. Yes, sir. We were never scheduled to buy but 811 Apaches. We would have had some in the National Guard and Reserves, but in those units that were high priority and earmarked.

Mr. MURTHA. Obviously one of the major concerns we have is the industrial base. If we make some kind of future commitment in Bosnia, for instance, and the industrial base is closed down. We all know it takes several years to get it back together again.

General FORSTER. Yes, sir.

Mr. MURTHA. What would it cost to replace these things? Say we wanted to put the replacement helicopters in.

General FORSTER. It is about \$7 million per Black Hawk when you include the initial spares.

Mr. MURTHA. Would you say they ought to be replaced? Would you say the readiness of the Army is degraded because they are not available?

General FORSTER. On the Black Hawks, eventually it will be, but they are still in production, so losing 10 Black Hawks just causes us a two-month delay. That is no problem unless they are not replaced.

Mr. MURTHA. If we put those helicopters in, you could accept them.

General FORSTER. Yes, sir.

Mr. MURTHA. Is your readiness eroded by not having those helicopters?

General GARNER. At the end of that buy without those ten helicopters, we have a Medivac unit that stays in Hueys. So the readiness of that unit is impacted.

Mr. MURTHA. The Hueys carry less, make more noise, are more vulnerable. The Huey is not as capable as a Black Hawk; is that right?

General GARNER. We have a requirement for 31 attack battalions with Apaches. We only have 25 battalions of Apache attack helicopters. We have 31 that are required.

With the loss of the 24 Apaches, if we lose those, that is one attack battalion that we will not have. The Second Infantry Division in Korea will stay with the Cobras.

Mr. MURTHA. Are those Apaches supposed to go to the National Guard?

General GARNER. Detailed to go to the 114th in Arkansas, sir.

Mr. MURTHA. If they are not replaced, the National Guard would have Hueys. If they were called up, they would have inferior equipment?

General GARNER. Yes, sir.

Mr. MURTHA. What would be the cost to replace those?

General FORSTER. Fourteen million dollars apiece in production plus initial spares.

Mr. MURTHA. Double the cost of a Black Hawk?

General FORSTER. Yes, sir.

Mr. MURTHA. The Black Hawk would not fill the job; you couldn't replace Hueys with Black Hawks?

General FORSTER. Hueys, but not Apaches. We really need the attack helicopter capability.

Mr. MURTHA. That is for a Cobra-type helicopter?

General FORSTER. Yes.

We would take a Cobra battalion and convert it if we were given the Apaches. Without the Apaches, it has to stay in Cobras.

Mr. MURTHA. This is a serious year and in times past, we put in that kind of a thing and it wouldn't be a problem.

Is there a serious deficiency because of the loss of these helicopters? That is what I am asking.

General FORSTER. There is not a serious deficiency this year because we hadn't fielded that particular battalion; yet. We will accelerate the redistribution of Apaches and where it will really hurt us is as you come to the end of the production line, there will not be enough for the final battalion.

Mr. MURTHA. When is the end of the production line?

General FORSTER. 1995.

Mr. MURTHA. If we don't buy them this year, we will not have them?

General FORSTER. That is right.

Mr. MURTHA. What do you recommend?

General GARNER. We can't buy them. We don't have the money. From a warfighting standpoint, we need them. The requirements are 31 attack battalions, sir.

Mr. MURTHA. From a requirements standpoint, if you ignore the cost, you need them. What is the total overall requirement and how many do you have today?

General FORSTER. Sir, the acquisition objective was 811. We have bought about 750 or so, and we have about 700 because we have lost 32 in crashes and the 24 that have been given away.

Mr. MURTHA. Wouldn't you have crashes in the future?

General FORSTER. Yes, sir. We will continue to lose them.

Mr. MURTHA. Yet the line is going to end and you are talking about a serious deficiency here.

Are you looking for something else to replace it down the road?

General FORSTER. No, sir. We don't have anything on the books to replace Apache.

Mr. MURTHA. Are you looking at troops deployed and the fact that you won't respond to some of these emergencies?

General FORSTER. Our overall plan in the attack and reconnaissance helicopter position has been to keep 800 or so Apaches there and the 25 battalions, and replace all the Cobras with the Comanche as it comes on line.

Mr. MURTHA. How many do you lose per year?

General FORSTER. 3.2 on average. We have lost 32 in 10 years.

Mr. MURTHA. How many did you lose in the last nine months?

General FORSTER. I don't know. I will have to answer that one for the record.

Mr. MURTHA. We understand it has been almost one a month.

General FORSTER. That sounds high, sir. I will check that and answer that for the record.

[The information follows:]

We have lost five Apaches in the last nine months.

Mr. MURTHA. I am worried that we are moving towards a hollow force here with reductions in procurement to levels where production lines come to a close. Some units won't be able to respond with the appropriate equipment. That means that we will not have the enhanced power that it takes to save American lives. That is what we are talking about. That is how serious things are.

When you see it as we do, we see it through all the services. These reductions have a real impact on the quality of the force. When you take the fact that instead of 100 percent of high school graduates, there is 90 percent, propensity to enlist is down, service away from home is longer.

I remember in the Navy where we were 16,000 petty officers short because people left the service when they were overseas nine months at a time and turned around and went back for four months.

I don't want to see you folks being forced to come here with a reduced budget with which you can't sustain a quality force. That concerns me particularly with the production line going down. You can say we can get by this year, but if the line goes down, we won't

be able to get by with this number of helicopters.

Mr. Skeen?

TOW MISSILE

Mr. SKEEN. Thank you, Mr. Chairman.

General, glad to have you all here. I would like to talk about the TOW missile program. I have a very special interest in this; the production line also exists in my district. I understand that we are far short of the respective inventory objectives for both the Army and the Marine Corps.

Is it accurate that we are going to shut down that production line?

General FORSTER. Yes, sir.

As we went through reevaluation of requirements and looked at the reduced force structure, the Army determined that we probably should begin closing that down in 1994 and we subsequently had some additional dialog with OSD and it may go before then, but that is not for sure yet.

Mr. SKEEN. Would you tell me how you intend to use the remaining 1993 funds that are currently on hold by OSD and is there currently a production break in the line?

Just exactly when do you intend to award the 1993 production contract or will you?

General FORSTER. Right now, sir, that is on hold depending on the outcome of some reprogramming actions within OSD.

I would like to answer that specifically for the record.

Mr. SKEEN. Do that.

[The information follows:]

The Army awarded a FY93 TOW production contract prior to May 31, 1993. It is the Department's intention to procure sufficient Army 2B missiles with FY93 funds to preclude a break in production before assembly of the Marine Corps' TOW 2A missiles.

General FORSTER. Our intent was to respond and move some of the Army money in 1993 over to buy TOW 2A missiles for the Marine Corps. That is on hold while we work some issues for another week or so.

Mr. SKEEN. Is that as a result of the \$130 million in reprogramming that you are doing?

General FORSTER. Yes, sir.

Mr. SKEEN. I am concerned if you shut the line down how do you maintain your storage levels, supply levels? It is a very serious problem in our part of the country.

General FORSTER. Yes, sir. I appreciate that and we will answer it for the record as soon as we have a clear idea.

Mr. SKEEN. I appreciate that. Thank you very much.

Thank you, Mr. Chairman.

[The information follows:]

The U.S. Army supply level or inventory of TOW missiles worldwide is as below. The on-hand data is as of 20 May 1993 for missiles produced and accepted into the Army inventory. The projected data is for assets as of the end of FY94. The U.S. Army requirement is for 119,799 missiles to meet worldwide contingencies against the most advanced threat armor equipped with the most advanced countermeasures. This quantity would provide sufficient stocks to issue three combat loads per ground

TOW missile launching vehicle and two per helicopter. However, the Army Modernization Strategy is to equip the first-to-fight forces—the Contingency Corps, Forward Deployed forces, and Reenforcing forces—with the most modern munitions (TOW 2A/B). The inventory data listed below is for TOW missiles type classified as fully acceptable for their intended mission (Logistics Control Code (LCC A)), and are fully capable of defeating advanced threat armor, and are hardened against known countermeasures. These missiles, plus the missiles due in from contracts currently in place, will meet the first-to-fight requirement.

| Missile inventory by type | Current | Projected end fiscal year 1994 |
|---------------------------|---------------------|--------------------------------|
| TOW 2A..... | ¹ 61,836 | 64,152 |
| TOW 2B..... | 7,615 | 23,644 |
| Subtotal..... | 69,451 | 87,796 |

¹ The U.S. Army has a plan to convert a total of 22,000 TOW 2 missiles to TOW 2A configuration. To-date, approximately 15,007 missiles have been converted to TOW 2A by exchange of warhead to increase lethality, but this does not change the missile shelf-life.

We have recently type reclassified many of our older and less effective TOW missiles as Contingency, suitable for training use (LCC S). These missiles are the older ones which are no longer being produced, and are _____. Age and expected shelf-life are becoming a safety factor for the oldest Basic and Extended Range (ER) Basic TOW missiles. These missiles must have a safety modification applied before they are consumed in training. The inventory figures presented here are for the LCC S TOW missiles.

| Missile inventory by type | Current | Projected end fiscal year 1994 |
|--|---------|--------------------------------|
| Basic TOW..... | 4,204 | 4,204 |
| Extended Range (ER) Basic..... | 19,121 | 12,000 |
| Improved TOW..... | 37,123 | 37,000 |
| TOW 2..... | 34,735 | 33,000 |
| Subtotal..... | 95,183 | 84,204 |
| Total asset posture, all missiles..... | 164,634 | 174,000 |

Mr. MURTHA. What is this now? I hear you folks are going to reprogram the money appropriated for procurement of TOWs? Do you have a surplus of TOWs?

General FORSTER. No, sir.

Mr. MURTHA. It reminds me of the truck controversy. Everybody kicked the devil out of us when we funded more trucks than the Army wanted. They said there were too many trucks. When we went to Saudi Arabia, what did we find? The biggest shortage we had was trucks. It took us forever to get the trucks. We had to lease trucks from the East Germans.

If somebody doesn't tell us you have a problem, we can't take care of it. Are you aware that in the supplemental, we put in new O&M money for the Army instead of using this reprogramming?

General FORSTER. Yes, sir.

Mr. MURTHA. That should take care of this TOW problem.

General FORSTER. Sir, there are other reprogrammings going on within the Department that are still in a working stage and nothing is final on that. That is why I am reluctant to answer Mr. Skeen specifically. We have no DOD position on this.

Mr. MURTHA. If you want to be realistic, don't send up a proposal to reprogram TOW procurement funds. It is not going to be approved, period. So there is no sense sending the thing up. You don't

have excess TOWs, so you can go back and tell the chief that that is one that is going to be rejected.

I know sometimes you do that because you just can't find other sources of funds. We are trying to take care of those problems. If there is a shortage in O&M, we have to know about it. We are going to have a terrible problem with the budget with the tempo of operations as it is and with the morale that is out in the field.

We have to be careful we don't make it worse with our actions here.

Mr. Skeen.

Mr. SKEEN. All I am trying to do is get a grip on how effective or how far reaching is the effect of reprogramming \$120 million in appropriated 1993 funds in this omnibus reprogramming.

Of course, one of the objectives is to reduce or shut off the TOW missile production, a small production line, when your inventories are short already.

I appreciate the general giving me an answer for the record.

It doesn't make sense to use and because it is very difficult to reestablish those lines once you shut them down.

I thank the chairman and I thank you, sir.

Mr. MURTHA. What is the shortage in TOW missiles?

General FORSTER. There is not a shortage in total TOW missiles but there is a shortfall in the first line combat inventory of TOW 2A and 2B missiles.

Mr. MURTHA. We understand it is 30,000 short.

General FORSTER. We have 88,000 TOW 2A and 2B missiles.

General GARNER. Twenty-six are TOW 2B. We like that missile because it is the most modern attack missile. If you express your requirements just in TOW 2Bs, we would be short, but we have expressed our—

Mr. MURTHA. We want our troops to have the best possible anti-tank weapon if they go into battle. I don't know what the requirements are.

General GARNER. You have three people sitting before you that agree with that 100 percent.

Mr. MURTHA. Mr. Visclosky?

Mr. VISCLOSKY. Thank you, Mr. Chairman.

General, in your statement, you talk about munition sites that include munitions to defeat moving vehicles as well as munitions to destroy high-priority short dwell targets.

Could you describe a short dwell target? Is that a mobile target that is stationary for a short period of time?

General FORSTER. Yes. Tactical ballistic missiles. The launchers come out of a hide position. They set up and they fire and once it is clear of the rails, they start going back into a reload position.

They may only be stationary out in the open 10 or 15 minutes. It doesn't matter to us whether they are moving into the position or out.

We can engage them. Once they get back into their hiding position, it is harder to find them. We want to catch them while they are coming into the open into a launching position.

Mr. VISCLOSKY. So you are talking about a weapon system suitable for destroying that type of target although it would be in each case a moving target?

General FORSTER. Yes, sir.

It would be something with capability of engaging it when it moves forward or is stationary on a launch pad. That is a systems issue. You have to have a target location device, a Joint STARS or sensor that says it is moving into its position. You have to have the command and control links back to the fire unit, and have a fast-moving missile that would deliver the munitions in time for it to catch the launcher while it is still in the open.

Mr. VISCLOSKY. So there wouldn't be much difference between having munitions to do that chore as well as moving vehicles?

General FORSTER. Say you only picked up the acoustic signature, that might not give you all that is needed if it pulled up on a launch point and was stationary for a while. You can't optimize for one or the other and expect to get the total conditions here.

Mr. VISCLOSKY. Ammunition—is that your responsibility in terms of acquisition?

General FORSTER. It is, but that is a separate hearing done by General Holmes.

PALLETIZED LOADING SYSTEMS

Mr. VISCLOSKY. Let me talk to you about palletized loading systems.

The budget includes \$464.3 million for the last year of a 5-year multiyear contract for the procurement of the palletized loading system. Two weeks ago, the committee received a report on this program from the Director of Operational Test and Evaluation. The report concluded that the PLS system “was unable to deliver increased quantities of ammunition required during surge operations” and “did not demonstrate adequate reliability, availability or maintainability.”

Why does the Army continue to procure this vehicle in light of these criticisms?

General FORSTER. Sir, truth in lending or negotiating requires me to tell you that I was the Army tester when we did the test on the PLS. The Army report said that it was very effective and would realize the personnel savings that had been predicted and was perhaps better than we thought it was.

Mr. VISCLOSKY. Is this the 60-K loader we have talked about?

General FORSTER. No, sir. This is a 33 ton capacity tactical vehicle that carries two 16.5-ton flatrack of ammunition. It consists of a truck prime mover which carries one flatrack and pulls a trailer which carries a similar load and is self-loading. The truck load handling system self-loads a flatrack and then transfers it into the trailer. The truck then reloads another flatrack onto itself.

It is a self-offloading-type truck. It can carry standard containers, and they can be discharged quickly or you can load flatracks of ammunition behind it. Some trucks are equipped with a material handling crane to offload individual pallets of ammunition.

Mr. VISCLOSKY. What type of planes would those unload or load?

General FORSTER. We wouldn't use it for loading or unloading planes. It has a crane to pick up pallets, and put them on the flat-

racks and deliver it. Instead of delivering each piece incrementally, it will slide off the whole load at one time.

Mr. VISCLOSKY. This vehicle would essentially be used to take ammunition from a depot?

General FORSTER. No, the PLS is not designed to transport ammunition from the Depot. The main use would be the Army Maneuver Oriented Ammunition Distribution System. It transports ammunition from the Corps storage area forward to where the guns are.

As you get more forward, you have to put more emphasis on driving forward. The tactical mobility of the PLS provides this capability.

MLRS is a high rate of fire so we need to make sure we have an adequate way to keep the rockets distributed forward so the artillery unit doesn't have to go back and pick them up.

Mr. VISCLOSKY. Tell me about the difference then in terms of the evaluation of the program.

General FORSTER. The Army evaluation said it was suitable, but it needed work to be as reliable and available as we should have. That is based on the way we do tests for a system like this.

Our philosophy is that you ought to issue the trucks to the type of unit that is going to use them and let them use it in their training and support program with normal operator operating at Fort Hood and to wring the trucks out over a period of time.

We take data under controlled circumstances in that environment and evaluate it. When you do that then you have to live by the rules of the road at Fort Hood.

They have safety requirements. We can't go out of a motor pool unless you have both lights and your horn works, et cetera.

We collect whatever failures occur there. We have an assessment conference that goes back and uses the best judgment of the operators and experienced people to determine what would not have stopped us in combat.

The Defense Operational Test and Evaluation Group would have much preferred that we had a simulated war that went night and day 24 hours a day on an instrumented range somewhere and that we took the soldiers to that range to do the testing. That way you wouldn't have to make the judgments. They would not accept some of our judgment that these were not mission-affecting failures and they counted all of the failures when they came up with their determination and said it was unsuitable.

We believe it is more effective. You don't have to move soldiers to a test range. You can keep it based in their own motor pools and you get a better assessment of a system by giving it to a unit at their own installation than by staging an all-up test range.

Mr. VISCLOSKY. What is the effect of the evaluation by the Director of the Evaluation program? You now have a difference of opinion with which the Army apparently disagrees.

General FORSTER. What has happened in this case, there isn't a good answer for that. It will vary. In general, the Defense Acquisition Executive agreed with the Army position that we ought to proceed with the production and we have done so.

Mr. VISCLOSKY. In terms of the issues raised by the director's report or some of the problems that presented themselves to the Army, are those being corrected?

General FORSTER. Yes, sir.

In fact, almost all have been corrected and they are under retest now. That was a condition. The types of errors that they found were routine automotive maintenance and reliability issues.

Also we had a crane that was not as reliable as it should have been. The contractor has incorporated a number of corrective actions and the crane experienced no further failures during testing.

Mr. VISCLOSKY. Are these tests vehicles or have they all been built?

General FORSTER. These were production vehicles tested from low rate initial production. A lot of the deficiencies, for example, were a result of immature maintenance manuals used during testing which were not good enough. That shouldn't have happened, but it happened, but it is also straightforward to fix. A physical teardown of the vehicle was performed, maintenance manuals were modified and improved, as a result.

We were prepared to deploy the PLS with the improved manual should we have needed to do it last fall.

Mr. VISCLOSKY. Any additional cost for the corrections would be included in your budget request for 1994?

General FORSTER. These corrections are at the expense of the contractor. We will not take final acceptance of any of these vehicles until all corrections have been made, tested and accepted by us. That includes retrofit for the ones already built.

In June, there will be a major review of the additional testing going on now and then we will determine if sufficient corrections have been made to go ahead with the fielding.

Mr. VISCLOSKY. The Committee had directive language in the past that the Army ought to procure an enhanced flat-bed truck for this system before fiscal year 1994.

What is the status of that procurement?

General FORSTER. The contract for the development of the enhanced flatrack has been awarded. We accept your guidance, we agree. That is not something we are doing just because you told us to do it. We expect production to be under contract in about August this year.

Mr. VISCLOSKY. Thank you, General.

Thank you, Mr. Chairman.

INFANTRY UNIFORMS

Mr. MURTHA. Let me just remind the committee members that at 1:00, today we are going to see an infantryman dressed up in his latest Paris fashions. They call this the Soldier Integrated Protective Ensemble, Advanced Technology Demonstration.

Mr. MCDADE. Is that anything like a uniform?

General FORSTER. One of the first things we have done is change that acronym to get away from Protective Ensemble to Tactical Equipment. It is still called a SIPE while in the technology demonstrator, but it really has an offensive capability to provide the individual soldier and Marine a lot more—

Mr. MURTHA. What is the new acronym?

General FORSTER. The Enhanced Integrated Soldier System.

General GARNER. You are going to like what you see because this program will turn the dismounted infantryman into Terminator III in the next century.

What happened is that they named it ensemble and we said that is not really the right name so they turned it into TEISS.

The infantry school said the new name for this program is now Land Warrior.

Mr. MURTHA. That is better; absolutely.

Mr McDade?

PROCUREMENT FUNDING LEVELS

Mr. MCDADE. Thank you, Mr. Chairman.

General, we had the hearing with the Marine Corps on their procurement budget, which is like yours, falling off a cliff.

Your statement says you are 60 percent lower than you expected to be 3 years ago. When the Marines testified, they said that in order to have a credible procurement budget, they need to be at a level of about a billion dollars a year.

Have you had an opportunity to examine in your own professional opinion what would be a similar Army requirement for a steady procurement budget that would keep you in a position where you would be comfortable with the budget level?

General FORSTER. Sir, about where we are now, \$6.8 billion is what we think is a minimum required to do a slow modernization replacing older equipment on a relatively slow pace.

That is not what we would like. We could continue to modernize at a relatively low pace with the \$6.8 billion.

Mr. MCDADE. You have authenticated all the production lines that have stopped like TOW?

General FORSTER. Yes, sir. That means that we are doing everything we can do to look at requirements, adjust requirements downward as necessary.

We are taking cognizance of future force structure issues. We are taking things out of the infrastructure which we don't like to do that are fixed costs that we are trying to avoid. It is a lot of effort on our part to live within \$6.8 billion and continue any pace of modernization, but we are trying.

Mr. MCDADE. Is the \$6.8 billion the figure that you would professionally recommend to the committee?

General FORSTER. My personal recommendation is that it ought to be about \$2 billion more than that.

Mr. MCDADE. What do you give up if you get to that level that you are talking about? We have had discussions in here about all kinds of programs ramping down, serious discussions about whether or not that is in the interest of the Nation.

Let's take the difference between the six and the roughly eight that you are talking about. What falls out if you are at six rather than eight? Can you give us an idea of what you wouldn't be including?

General FORSTER. We have stretched out our upgrade program for our maneuver forces, the upgrade of the M-1s is slower than we would like.

The Bradleys don't come in until 1999 in any kind of quantity so we are disconnected with a Bradley upgrade compatible with the A-2 tank. We have delayed the Apache Longbow upgrade for a year.

To keep a balanced program within the \$6.8 billion level, we have stretched things out, reduced quantities to what we think is minimum sustainable, plus we have eliminated things that we would like to have done.

We have stopped all upgrades on the Hawk missile and we are just sitting with what we have until we can bring in CORPSAM, beyond 2000. Well beyond that, before we see that.

In the last several years, we have stopped the armored systems modernization program from the standpoint of new development and concentrated on upgrading the Abrams and Bradleys that we have already.

That has gone on, the OH-58D program we can't put more money in it. There had been approximately 40 programs killed or terminated early as we have gotten down to the \$6.8 billion.

Mr. DICKS. Will you please provide a list of those programs?

[The information follows:]

The listing of Army programs which have been killed or terminated early is as follows:

UNCLASSIFIED

ACQUISITION REDUCTIONS SINCE FY89

FY89
ACTIONS

| | |
|---------------------------|---------------|
| M939A2 | TERMINATED 89 |
| FOLLOW-ON-TO-LANCE (FOTL) | KILLED |
| ATACMS BLK1 | TERMINATED 94 |

FY90
ACTIONS

| | |
|-------------------------------------|---------------|
| HIMAD C2 | KILLED |
| HAWK MODS | TERMINATED 92 |
| *STINGER RMP | TERMINATED 91 |
| AMS-H ADVANCED MISSILE SYSTEM HEAVY | KILLED |
| SEE (SMALL EMPLACEMENT EXCAVATOR) | KILLED |
| CHAPARRAL MISSILE (RSS) | TERMINATED 91 |
| 155MM BASEBURNER | TERMINATED 92 |
| RIBBON BRIDGE | KILLED |
| 115MM BINARY | KILLED |
| HEMTT | TERMINATED 89 |
| LIGHT ASSAULT BRIDGE | KILLED |

FY91
ACTIONS

| | |
|--|------------------|
| TEXS (TAC EXPLOSIVE SYS) (2 SUB SYS) | TERMINATED 93,94 |
| MLRS ROCKETS (WARM INDUSTRIAL BASE) | TERMINATED 91 |
| ELEVATED CAUSEWAY | TERMINATED 94 |
| MASKED TARGET SENSOR (MTS) | KILLED |
| M9ACE | TERMINATED 90 |
| TRACTOR RIG | TERMINATED 92 |
| NLOS | TERMINATED 91 |
| HEAVY ASSAULT BRIDGE (HAB) (REINSTATED FY94PB) | KILLED |
| TOW2B | TERMINATED 94 * |
| GROUND LAUNCHED TACIT RAINBOW | KILLED |
| MPIM | TERMINATED 91 |
| TARCTOR NAIL | KILLED |
| MARK XV IFF | KILLED |
| MLRS-TGW | KILLED |

FY92
ACTIONS

| | |
|--------------------|--------------|
| ADATS | KILLED |
| ASM | RESTRUCTURED |
| TSIP | REDUCED ITAS |
| LAMP-H | KILLED |
| TRACTOR HELM | KILLED |
| FMTV-TRL | KILLED |
| SEMITRAILER 5K GAL | TERMINATED |
| FXJAM | KILLED |
| FAASV | TERMINATED |
| ASAT | KILLED |

FY93
ACTIONS

| | |
|----------------|----------------|
| AVENGER | TERMINATED 97 |
| M919 25MM | TERMINATED 94 |
| CUCV | TERMINATED 96 |
| BLACKHAWK | TERMINATED 94 |
| LT HMMVV | TERMINATED 94 |
| HAWK PIPS | TERMINATED 94 |
| HELSTF | KILLED |
| M119 HOWITZER | TERMINATED 94 |
| MI MOB TRAILER | KILLED |
| FMTV | REDUCTION 94 |
| AFAS | REDUCTION/SLIP |
| FARV | REDUCTION/SLIP |
| TOW2B | TERMINATED 94 |

KILLED = NEVER PROCURED TERMINATED = TRUNCATED PRODUCTION * = LATER REINSTATED

UNCLASSIFIED

ASPAD



M-1 TANK UPGRADE

Mr. McDADE. Let me talk about the M-1 tank upgrade program.

After a lot of disagreement, there is finally a program worked out. There is about \$80 million in the budget for the next fiscal year to try to keep the upgrade program going.

Will you tell us the status of the program and the current plans for completing it?

General FORSTER. Yes, sir.

The program is going relatively well. As you recall, we had in previous years new production of 62 M1A2 tanks. That production was completed and those 62 are being delivered; some are already issued to First Cavalry Division at Fort Hood.

In the meantime, the contract has been awarded for four pilot production or "prototype" upgrades taking basic M-1 tanks and upgrading them to an M1A2. That is going okay.

We are nine months away from receiving our first modified M1A2 there. That will come in March of next year. That is moving along well.

In the meanwhile, the test and evaluation of the M1A2 continues. We are doing quality testing. Operational testing starts in September and we will have a full-rate DAB decision about a year from now to go full-rate production on the upgrade program itself.

Mr. McDADE. As I understand in phase one, it was 206 tanks upgraded and four prototypes.

General FORSTER. Yes sir,

Mr. McDADE. What is the total procurement cost of that phase?

General FORSTER. It is \$772 million.

Mr. McDADE. Is any of it underfunded?

General FORSTER. No, sir. That is locked in and we will make that happen.

Mr. McDADE. How much is obligated today?

General FORSTER. I will answer that for the record. It is a combination of two years funding.

[The information follows:]

As of the end of April, \$65.7 million of the \$196.6 million fiscal year (FY) 1991 Advance Procurement funding has been obligated for long lead materiel for Phase I. \$137.4 million of the \$171.6 million FY92 funding has been obligated for pilot vehicles, long lead materiel and Depleted Uranium armor. The total FY93 obligation plan and status is shown below:

[Dollars in millions]

| | Plan | Actual | Quantity |
|-------------------------------|------|--------|----------|
| Vehicle | 67.5 | 15.8 | 210 |
| Armor | 35.6 | 0.0 | 240 |
| Engines | 12.3 | 5.9 | 12 |
| Transmission | 21.7 | 2.5 | 12 |
| Fire control components | 25.0 | 12.1 | 12-150 |
| Cannon | 20.7 | 19.8 | 210 |
| Final drives | 2.1 | 2.1 | 210 |
| Gun mounts | 4.7 | 4.7 | 210 |
| Basic issue items | 1.1 | 0.4 | 210 |
| Road wheels | 1.9 | 1.9 | 210 |
| Communications | 0.9 | 0.0 | 210 |
| Driver night viewer | 0.7 | 0.0 | 210 |

[Dollars in millions]

| | Plan | Actual | Quantity |
|------------------------------|-------|--------|----------|
| Gas particulate filter | 0.4 | 0.0 | 210 |
| Special tools | 1.4 | 0.0 | 210 |
| Should cost | 0.5 | 0.5 | n/a |
| Total | 196.6 | 65.7 | |
| Carryover | 0.0 | 65.7 | |

[Dollars in millions]

| | Plan | Actual | Quantity |
|--|------|--------|----------|
| Contractor furnished materiel | 54.2 | 0.0 | 210 |
| Commander's control handle | | | |
| Commander's independent thermal viewer | | | |
| Position/navigation unit | | | |
| Slip ring assembly ammo racks | | | |
| Total | 54.2 | 0.0 | |
| Carryover | 0.0 | | |

[Dollars in millions]

| | Plan | Actual | Quantity |
|---------------------------------|-------|-------------------|----------|
| Vehicle (pilots) | 27.3 | ¹ 91.7 | 4 |
| Armor (salaries) | 7.0 | ¹ 40.8 | n/a |
| Transmission | 7.8 | 0.0 | 12 |
| Special tools | 4.2 | 0.0 | 210 |
| System technical services | 9.8 | 4.8 | n/a |
| Total | 56.1 | 137.4 | |
| Carryover | 115.5 | | |

¹ The current plan is to de-obligate FY92 funding currently obligated for Long Lead Materiel and re-obligate with FY91 Advanced Procurement funding.

[Dollars in millions]

| | Plan | Actual | Quantity |
|-------------------------------|-------|--------|----------|
| Armor | 25.0 | 0.0 | 120 |
| Vehicle intercom system | 2.0 | 0.0 | 210 |
| Total | 27.0 | 0.0 | |
| Carryover | 133.5 | | |

Mr. McDADE. There was a press statement by General Garner saying he was upset about the cost overruns in the program.

Are there cost overruns in the program?

General GARNER. Here is what happened: When we were dialoging with OSD for approval of this program, we were talking about an upgrade running in the range of \$3.8 million per tank.

What has happened recently is General Dynamics came in and quoted three different price ranges from \$4.2 million up to \$5.1 million.

My dialog with them was that look, everybody is downsizing. All of us are taking efficiencies and you are quoting business as usual based on the way we used to do business in the eighties so I think

it is incumbent upon you to give the best price to the Nation and the United States.

The other thing I told them——

Mr. McDADE. You are engaging in negotiations with them?

General GARNER. I think we have leveled the playing field. I said when you come back, tell us what Government costs are onerous to you, but you can't strong arm us and say this is what it is going to cost you. We have to work this out together.

Mr. McDADE. The press was talking about a threat to compete the program. Was that involved in part of this negotiation?

General GARNER. I told them the United States Army will not get out of the tank business. I didn't tell them we wouldn't get out of the General Dynamics business.

The inference they make from that——

Mr. McDADE. You had a good, frank discussion with them?

General FORSTER. The good news is they got to General Garner first, but I would have told them the same thing. Within the \$6.8 billion that is based on carefully controlled costs, we have to do what we can do to get rid of little value-added requirements that come in the procurement process.

We expect them to be equally aggressive.

Mr. McDADE. That sounds like good business and we are proud of the fact that you are keeping their feet to the fire.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Darden.

HELLFIRE MISSILE

Mr. DARDEN. Thank you, Mr. Chairman.

I don't think there is a lot to ask you folks about when I look at the amount of money that has been taken away from this procurement account.

I don't know how you will make do with the budget you have submitted to us. I realize the constraints you are under and the odds that you get, but this is a drastic cut in procurement.

The only thing I can do is wish you well as you go back. I think we ought to look at giving increased flexibility to the Army as it makes some of these decisions because I think you have a very difficult task in front of you. I wanted to ask a little bit about the Hellfire missile.

This has been a rather successful program. There has been a lot of advance procurement. It has been, I think, a model program as to how Army procurement is carried out.

Where does the Hellfire II stand now? How is that coming along? What do you see as the prospects for Hellfire II?

General FORSTER. Hellfire II is doing okay. We expect to go on contract for initial quantities soon after review of the test program.

Mr. DARDEN. What we are talking about in terms of years before the Hellfire II is brought into the field?

General FORSTER. We intend to go on contract this year. We will get deliveries about a year from now and then we would put it through a production qualification test.

We could not field it until we had verified the production missile met all the specifications and was as good as the prototype we are testing now.

So you are talking 18 months to 2 years.

Mr. DARDEN. What are the general advantages or enhancements of Hellfire II over the Hellfire missile?

General FORSTER. There are several different varieties of the basic Hellfire and I don't want to talk about the early old Smokey one that I developed, which is really tactically not useable now.

The current version of the Hellfire, the Interim Warhead Hellfire which has a tandem warhead and is longer than the basic Hellfire in order to accommodate the warhead.

Hellfire II goes back to the basic Hellfire size and weight so it has the same CG and weight and has the dynamics of the basic Hellfire that was qualified on the Apache and 58 Delta.

It has a better capability to counter electro-optical countermeasure devices that we expect to see in the field. So it has a better countermeasure capabilities against electro-optical jamming and spoofing systems that are out there.

It is repackaged so it is back to the same dynamics that we are used to using and has a more lethal, high-power tandem warhead and has a counter-countermeasure capability.

Mr. DARDEN. There was discussion at one time about additional deployment of the Hellfire missile other than from a helicopter.

What other platforms are used for Hellfire now other than the Apache?

General FORSTER. On H-58D Armed Kiowa Warrior and the Marines use them on the AH-1W Cobra.

There are ground applications that have been sold overseas.

Mr. DARDEN. Tell me about the ground applications.

General FORSTER. We are not using them although the Army developed and qualified a ground application (Ground Launch Hellfire—Light) on the High Mobility Multi-Purpose Wheeled Vehicle but we did not procure it. Ground applications of Hellfire in the U.S., have been bought by a Scandinavian country for a coastal engagement where they are mounted on a tripod and used to engage ships that would come within the range of the Hellfire, within seven kilometers of the shore there.

Hellfire is a highly accurate missile and you can decide whether you want to hit a ship in front or middle or rear or the top or bottom or whatever.

It is designed to hit the front part of a tank at the turret ring. It is an excellent system for taking out ships.

Mr. DARDEN. Is the only platform we have used to mount to Hellfire the air platform?

General FORSTER. Yes, sir.

Mr. DARDEN. Let's turn to Foreign military sales. Do you anticipate that you are going to sell the Hellfire II to foreign countries or will you continue to sell the Hellfire I and hold back on the II?

General FORSTER. Right now for those countries buying Apaches now, we will offer them the current version of Hellfire that is in production, because Hellfire II is not in production yet and we haven't qualified it yet. We don't feel comfortable in offering it to anyone at this time.

Mr. DARDEN. So we have made no commitment to foreign countries that they can count on the Hellfire II being available anytime in the future?

General FORSTER. We have not made any commitment at all. We have not made a secret about it coming and going on contract.

The electro-optical counter-countermeasure system is a little sensitive so we will have to go through all the coordination and everything to get a technology release for that, which we haven't done yet and won't even start until we have completed the testing and have it in production.

Mr. DARDEN. Then based on our general experience in R&D, then followed by procurement programs, if the Hellfire II became available for FMS, how long away would that be in practical terms?

General FORSTER. Eighteen months to two years just off the—in practical terms. You might speed it up or it might slow down depending on what the test results were.

Also, we are dealing with people just now coming into the FMS and the defense policy arena so we haven't taken a new technology release forward yet.

I am assuming it won't be more difficult than it has been in the past, Eighteen months to two years.

Mr. DARDEN. Thank you.

EXTERNAL HELICOPTER FUEL TANKS

Mr. LIVINGSTON. I understand you have had conversations with staff about the request by the Guard and Reserve units provided in fiscal year 1991, 1992, and 1993 additional funding to procure external auxiliary fuel tanks for the UH-1 helicopters and provide an additional 1½ hours of endurance and increase range for medical evacuation search and rescue and drug enforcement and the tanks would have been a big help during Desert Storm.

Even though the Guard and Reserve units in the field want these tanks and even though a RFP is ready to be issued, nothing has happened yet.

Could you bring us up to date on that?

General FORSTER. I would say that that procurement is moving and we anticipate to award that contract this year in August or September depending on how fast they move.

We anticipate having the external tanks under contract before 30 September and that is really—I am giving myself a couple of weeks on that.

Mr. LIVINGSTON. Thank you very much, General Forster.

Thank you, Mr. Chairman.

BRILLIANT ANTI TANK SUBMUNITION

Mr. MURTHA. Can somebody tell me what this thing is?

General FORSTER. That is a BAT, a Brilliant Anti-Armor Submunition.

Mr. MURTHA. It works as long as the tank engine is running; is that right?

General FORSTER. Yes, sir.

It is designed to go after moving targets and the four prongs on the wings are acoustic sensors——.

Mr. MURTHA. It has to be moving with a lot of noise or it doesn't react; is that right?

General FORSTER. It needs to be moving and generating that type of noise, not necessarily a lot of noise. What is programmed into it is to engage a moving target.

It is a matter of changing algorithms and doing testing to look at different targets, but it still would have to have the noise.

The advantage of that system is that it has a wide foot-print and we felt we needed—we would not always have the value of precise target location and the ability to track a moving target.

We built something that could engage a target within a——.

Mr. MURTHA. They fire this in a TSSAM and it is deployed at an altitude and seeks out a target?

General FORSTER. Yes, sir. You carry 22 of them in a TSSAM.

Mr. VISCLOSKY. Carried in a missile, not a plane?

General FORSTER. It is delivered in cruise missiles. It is deployed in the objective area where you have predicted the moving target to be, that prediction can be good or bad depending on the last time you detected him and what his options are.

Mr. MURTHA. So it deploys at a certain altitude and it attacks multiple targets, each one seeks out a different target?

General FORSTER. That is correct.

As the BATS come out and the wings unfold, they are programmed individually to go into a maneuver that separates the BATS from each other and they line up doing a circling maneuver.

They are slowed down by parachute as the wings unfold and those four prongs start listening for sounds and they home in on the sound that is within their designated search cone.

You may get multiple hits on the same target. It is not 100 percent, but it is pretty good.

The sounds get them close. Once they have homed in on the sound, the seeker switches to an infrared sensor and it homes in. That is what gives you the ability to hit the sweet spot on a tank and do the top attack on the engine.

Mr. MURTHA. So it has a shape charge?

General FORSTER. Yes, sir. It is a two-phased sensor. One of the things we want to do in the future is to change that final sensor so that the acoustics will just get you oriented and then the final seeker will be able to move in on cold targets as opposed to just the infrared signal.

Mr. VISCLOSKY. How did you describe the warhead?

General FORSTER. It is a shaped charge warhead. You know, it is a powder charge that is a reverse cone so it focuses the explosive power into a jet and burns through.

It is a typical way of penetrating armor with high explosives.

Mr. VISCLOSKY. On page 41, you have the 40-millimeter automatic grenade launcher. I think of the grenade, and your cyclic rate of fire is 325 to 375 rounds per minute. What kind of grenade is that?

General FORSTER. It is a 40-millimeter weapon, an excellent weapon against people moving against you. It is very effective in getting snipers out of a tree.

Mr. VISCLOSKY. I think of a bullet.

General FORSTER. It is a fragmentation grenade that it puts out. You don't use it that way because you can't reload it that fast.

It does have a high rate of fire. It is an excellent anti-personnel weapon.

Mr. VISCLOSKY. I can believe that. Thank you, General.

Thank you, Mr. Chairman.

Mr. MURTHA. Thank you very much, gentlemen. We will have other questions for the record.

The committee is adjourned until 1 p.m. this afternoon.

[CLERK'S NOTE.—Questions submitted by Mr. Dixon and the answers thereto follow:]

MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)

Question. What extent does the coordination of rocket and launcher production lower the unit cost of the launcher?

Answer. Concurrent production of rockets and launchers lowers the unit cost of launchers by approximately 20 percent when compared to launcher production without rockets.

Question. What funding level would be required to produce 12,000 MLRS rockets, which would be 11,000 practice and 1,000 tactical in fiscal year 1994?

Answer. An additional \$70.3 million is required above the President's Budget to procure 12,000 rockets (10,998 practice and 1,002 tactical) in FY94.

[CLERK'S NOTE.—End of questions submitted by Mr. Dixon. Questions submitted for the record and the answers thereto follows:]

MODERNIZATION FUNDING BALANCE

Question. We have seen in your charts the dramatic drop in Army procurement funding since the mid-1980's. Research and development funding, on the other hand, has remained fairly constant. The result is that we are fast getting to the point where procurement funding equals research and development (R&D) funding. Does this concern you?

Answer. We have made a conscious effort to preserve our technological base. This will insure that we have not mortgaged our future and that we will be able to apply this technology to production when needs arise. I am, however, very concerned that if procurement funding were to decline further than the level projected, we would move into a dangerous threshold of uncertainty. Theory and prototyping can never replace lessons learned through full scale production and testing of new equipment by troops in the field. This is to say nothing of the problems which we would most certainly encounter if we were to re-start too many systems from cold production lines. I believe that the projected procurement funding reaches the point below which we should not fall if we are to maintain our edge on the battlefields of the future.

Question. What do you consider to be a proper and sustainable ratio between procurement and R&D funding?

Answer. The current environment provides an opportunity for us to exploit technology development efforts and reduce procurement requirements. The requested levels of procurement—R&D funding

reflect a proper ratio between R&D and procurement in the current environment.

Question. How long does the total Army modernization budget have to go before you make reductions in R&D in order to provide adequate funds for procurement?

Answer. The total Army modernization budget represents a balance between R&D and procurement. As I previously stated, I believe the R&D is at the necessary level. Any reductions in R&D would be directly related to specific program terminations.

ARMY PROCUREMENT REDUCTIONS

Question. General Forster, you note in your statement that your fiscal year 1994 procurement budget is sixty percent lower than it was expected to be just three years ago. Could you walk us through the various reductions that have been made and highlight the programs that were affected along the way?

Answer. Specific systems which were previously programmed for and subsequently killed or production terminated have been included as an insert to the record of this hearing.

Question. The Marine Corps testified last week that they considered \$1 billion per year to be a "sustainable" long range funding level for procurement. Do you have a comparable figure for the Army?

Answer. The Army's current request of \$7 billion is adequate to satisfy the current modernization requirements.

Question. What are your long term concerns about the projected funding levels for Army procurement?

Answer. I am concerned that, if procurement funding were further reduced, continued low levels in procurement will slow the process of putting "the cutting edge of technology" into the hands of our soldiers. We are also concerned that use of older equipment for longer periods of time than anticipated will drive up our Operation and Support (O&S) costs.

Question. What actions are the Army taking to maximize the benefit from the procurement funds that are available—in other words, to get the "biggest bang for the buck".

Answer. Increased capabilities through upgrades will be pursued as opposed to unaffordable new starts that we are unable to procure in significant battlefield quantities. Where possible, the Army has also terminated entire programs rather than to procure at uneconomical rates. Others of high priority have been stretched out in order to keep these critical programs alive.

Question. What procurement programs would the Army provide additional funding to if it were available?

Answer. Procurement programs for which the Army would provide funding if it were available are as follows (In Priority Order):

RDA Funding Requirements

| Program | \$M | TYPE | \$ | Remarks |
|--------------------|-------|------|----|--|
| C2V | 23.0 | RDTE | | Aligns C2V program more closely w/M1A2 program. |
| Bradley | 134.0 | RDTE | | RDTE effort to align A3 upgrade program w/M1A2 program and integration of the FIST-V mission module components. Upgrades 74 Bradley A0 to A2 |
| | | 54 | | |
| | | PROC | | |
| | | 80 | | |
| M1A2 | 21.0 | RDTE | | Supports IOTE & MSIII. |
| Maneuver Force | 46.1 | PROC | | Supports improvements to HAB (\$3.1M RDTE), BCIS (\$12M RDTE), and IRV (\$31M WTCV). |
| Desert Storm Fixes | | 31 | | |
| | | RDTE | | |
| | | 15.1 | | |
| Hellfire | 79.0 | PROC | | Fills shortages in the Contingency Corps and reduces unit cost by \$12,000 a missile. |
| HMMWV | 100.0 | PROC | | Buy's out HMMWV heavy variant requirement. |
| Ammunition | 287.0 | PROC | | Procures Sml arms, VOLCANO, 120mm tank, 25mm, Hydra 70, and Plant lay away. |
| M113FOV | 169.0 | PROC | | Accelerates upgrade of M113s. |
| LB Apache | 59.0 | RDTE | | Provides training and test support for AH-64C/D. |
| ATACMS | 10.0 | PROC | | Procures critical system modifications. |
| Force Provider | 100.0 | RDTE | | Provides humanitarian & disaster relief needed now. Supports contingency operations and fills CCF requirements. |
| | | 1.0 | | |
| | | PROC | | |
| | | 99.0 | | |
| Avionics Upgrades | 16.0 | RDTE | | Develops numerous avionic systems to digitize the Army's Halo Fleet. |

RDA Funding Requirements

| Program | \$M | TYPE | \$ | Remarks |
|-------------------|-------|------|----|--|
| FMTV | 150.0 | PROC | | Procures trucks at a faster rate to fill CCF requirements. |
| Const. Equipment | 100.0 | PROC | | Alleviates critical CCF shortages. |
| Patriot | 100.0 | RDTE | | \$5M develops communication processor development for |
| | 5.0 | | | AWACS link capability. \$95M procures PLS launchers for the |
| | | PROC | | PATRIOT BNs. Reduces lift requirement by 73%. |
| | 95 | | | |
| IEW Systems - Cdr | 10.0 | PROC | | Restores Cdr Tac terminal proc to an economic rate. Allows |
| Tactical Terminal | | | | fielding in FY97. |
| SINGARS | 134.0 | RDTE | | Procures radios at a faster rate - completes fielding 3 yrs earlier. |
| | 3.4 | | | |
| | | PROC | | |
| | 130.6 | | | |
| FAAS-V | 56.0 | PROC | | Buys new production to fill shortages and buys PIP mod kits to |
| | | | | field concurrently with Paladin. |
| MLRS | 60.2 | RDTE | | RDTE to accelerate ER-MLRS development. Proc Buys |
| | 3.2 | | | launchers at 44/year vs. 34/year, Reduces unit cost by \$200,000 |
| | | PROC | | a copy. |
| | 57.0 | | | |
| UH-60 Upgrade | 15.0 | PROC | | Buys UH-60A MEDEVAC upgrade. |
| FAAD C2 | 34.0 | RDTE | | Completes Hvy Div software devel and fielding . |
| LOSAT | 25.0 | RDTE | | Design/Fab critical fire unit subsystems. Addresses chassis |
| | | | | integration issues. |

RDA Funding Requirements

| Program | \$M | TYPE | \$ | Remarks |
|--|-------|------|----|---|
| NTH | 20.0 | PROC | | Required to meet actual procurement costs. |
| Apache | 386.0 | PROC | | Procures 24 AH 64A to replace 24 given to Israel to meet AAO.
Also bridges production gap between A model and C/D models. |
| PLS | 120.0 | PROC | | Procures 9000 flattracks. |
| Stingray | 5.0 | RDTE | | Funds ATD |
| Stinger | 12.0 | RDTE | | Funds Focal Plane Array Seeker development efforts. |
| LAN | 74.0 | PROC | | Provides data network for world wide data transfer. |
| MACOM Telephone | 60.0 | PROC | | Replaces uneconomical telephone switches, spts power projection. |
| IEW Systems -
Signal Warfare | 20.0 | RDTE | | Restores ECM sub-system funding to field in FY96. |
| IEW Systems -
Tactical Surveillance | 27.0 | RDTE | | Supports EMD and future system interoperability efforts. |
| S&T | 40.0 | RDTE | | Funds initiatives for: Industry participation at TRADOC Battle Labs, Batteries, Electric Gun, and Advance Distributed Simulations |
| Adv. Propellant Dev | 10.0 | RDTE | | Tests cannon assy and fabricate gun mount & recoil system. |

TOTAL INCREASE: 2479.3

DISPOSITION OF EQUIPMENT AS ARMY DOWNSIZES

Question. The large scale downsizing the Army is undergoing is, of course, bringing substantial changes in the Army's total equipment needs. What criteria have you set in terms of setting priorities for the disposition of equipment which is excess to the requirements of the active forces.

Answer. The criteria that the Army uses for the disposition of equipment which is excess to the requirements of the Active Component (AC) is based on the condition of the equipment, transportation costs, and requirements within the Reserve Components (RC). Equipment that is uneconomically repairable is processed through the Defense Logistics Agency's Defense Reutilization and Marketing Office (DRMO). Equipment that is excess to the AC as well as to the RC is offered for Foreign Military Sale (FMS). If not sold through FMS then equipment is disposed through DRMO. Items of equipment, for which there is a requirement within the RC, that need repair are assessed as to the amount of maintenance required as well as the cost to ship. The assessment is compared to the Maintenance Expenditure Limit (MEL) established for the given item. If the transfer cost exceeds the MEL, the equipment is processed through DRMO. If the item does not exceed the MEL the equipment is repaired and shipped to an RC unit/activity or sent to an RC repair facility to be repaired prior to issue to RC units.

Shipment to RC claimants is based on current Army distribution priorities. Priority is determined by the Department of the Army Master Priority List (DAMPL) and RC force modernization. The DAMPL is based on the Department of Defense "First-to-Fight" principle. The DAMPL stratifies, in deployment sequence, units to support various operational contingencies. Equipment may also be issued to support RC force modernization fieldings and force structure initiatives. Examples of such fieldings/initiatives are the M1 (Abrams) tank, M2/M3 (Bradley fighting vehicles), or mechanization of the Army National Guard's infantry divisions.

Question. What level and mix of equipment has been transferred to the Guard and Reserve in the past year? What is the value of the equipment you anticipate will be transferred to the Guard and Reserve in the next fiscal year?

Answer. Between May 1992 and April 1993 the Army's Reserve Components (RC) received \$1.364 billion worth of equipment. \$1.076 billion went to the Army National Guard (ARNG) and \$288 million went to the Army Reserve \$209 million and \$109 million respectively.

The Army projects \$885 million worth of equipment deliveries to the ARNG and \$191 million worth to the USAR next year. These figures do not include equipment from redistribution. The amount of equipment to be redistributed to the RC over the next year depends heavily on any further budget driven changes to the Army's overall force structure as well as funding for refurbishment and shipment of redistributable equipment. The ARNG and USAR should receive approximately the same level of redistributed equipment this year as last year, \$200 million and \$100 million respectively.

Question. What level of equipment excess to the requirements of the active forces will go towards Foreign Military Sales (FMS).

Answer. All of the equipment which is releasable to foreign countries and which is excess to the requirements of DoD may be offered to our friends and allies for purchase or grant transfer.

ARMY AIRCRAFT GIVEN TO ISRAEL

Question. Was the Army consulted before the decision to transfer these aircraft was made?

Answer. Yes.

Question. From which specific Army units are these aircraft to be taken?

Answer. The Commander, United States Army Europe, has the latitude to select 18 Apaches and 10 Black Hawks from units in his command. The Commander, United States Army Forces Command, has the latitude to select 6 Apaches from units in his command. Therefore, specific units have not been identified yet.

Question. How much will replacement of these aircraft cost?

Answer. If these aircraft were to be replaced in fiscal year 1994, the 24 Apaches would cost \$386 million and the 10 Black Hawks would cost \$66 million.

Question. Are these costs included in your current future year budget?

Answer. No.

Question. If the Army is to replace the Apache aircraft, when must this be done in order to do so before the production line goes cold?

Answer. McDonnell Douglas Helicopter Company must receive long-lead funding no later than August 1993 to prevent the AH-64A production line from going cold in August 1995 if there were no additional foreign military Apache sales.

Question. Are additional transfers of this nature being considered? If so, please describe them.

Answer. The Army has received no indication that similar transfers are being considered.

APACHE REQUIREMENTS

Question. How many Apache helicopters will the Army have in its inventory when all the aircraft currently under contract are delivered?

Answer. The Army will have 811 Apaches minus attrition when all contract deliveries are made.

Question. What is the Army's currently validated requirement for Apache?

Answer. The Army's current validated requirement for Apache is 1,024.

Question. What is the current fielding plan for Apache?

Answer. The current fielding plan is as follows:

| Fiscal Year | Unit | Location |
|-------------|------------------------|-----------|
| 86..... | 3-6 CAV/III CORPS..... | FT HOOD |
| | 1-6 CAV/III CORPS..... | FT HOOD |
| 87..... | 2-6 CAV/V CORPS..... | ILLESHEIM |

| Fiscal Year | Unit | Location |
|-------------|-------------------|-------------|
| | 2-101 AHB/101 AA | FT CAMPBELL |
| | 1-227 AHB/1 CD | FT HOOD |
| 88 | 1-82 AHB/82 ABN | FT BRAGG |
| | 1-130 AHB/ARNG | N CAROLINA |
| | 4-6 CAV/III CORPS | FT HOOD |
| | 4-11 ACR/V CORPS | FULDA |
| | 4-229 AHB/V CORPS | ILLESHEIM |
| | 1-101 AHB/101 AA | FT CAMPBELL |
| 89 | 2-229 AHB/XVIII | FT RUCKER |
| | 1-151 AHB/ARNG | S CAROLINA |
| | 3-1 AHB/3 MX | ANSBACH |
| | 3-227 AHB/1 AD | HANAU |
| | 1-111 AHB/ARNG | FLORIDA |
| | 1-24 AHB/24 MX | FT STEWART |
| 90 | 2-1 AHB/3 MX | ANSBACH |
| | 1-1 AHB/1 MX | FT RILEY |
| | 2-227 AHB/1 AD | HANAU |
| | 1-221 AHB/ARNG | UTAH |
| | 6-6 CAV/V CORPS | ILLESHEIM |
| 91 | 2-3 AHB/V CORPS | GIEBELSTADT |
| | 1-4 AHB/4 MX | FT CARSON |
| | 1-5 AHB/5 MX | FT POLK |
| 92 | 1-149 AHB/ARNG | TEXAS |
| | 3-229 AHB/XVIII | FT BRAGG |
| | 1-229 AHB/XVIII | FT BRAGG |
| | 3-101 AHB/101 AA | FT CAMPBELL |
| 93 | 1-183 AHB/ARNG | IDAHO |
| | 1-285 AHB/ARNG | ARIZONA |
| | 7-6 CAV/USAR | TEXAS |
| | 5-50-1 AHB/17 BDE | KOREA |
| 94 | 8-229 AHB/USAR | KENTUCKY |
| | 4-501 AHB/17 BDE | KOREA |

Question. What changes, if any, are currently under consideration to the fielding plan for Apache?

Answer. The Army is currently planning an aviation redesign initiative that increases the number of Apaches in the attack battalions from 18 to 24. Since the Army plan is not to buy additional Apaches, the number of Apache battalions will be reduced. The redesign allows the Army to remain within mandated personnel end strengths, fix Army of Excellence manpower shortages in the units, and to retire older aircraft at a more rapid pace.

Question. Provide for the record a stratification of the Apache requirement.

Answer. The total requirement is 1,024 Apaches: 756 Table of Organization and Equipment, 192 float and attrition, and 76 Table of Distribution and Allowances (training base, etc).

Question. What elements of the Apache requirement are unfilled as a result of not fielding the total requirement?

Answer. There are three Active Component battalions and 14 Reserve Component battalions not fielded as a result of not procuring to the full requirement.

Question. What is the assumed attrition rate for Apache and how does this compare to actual attrition over the past several years?

Answer. The planning factor for attrition is four Apaches per year. The actual attrition rate has averaged 3.86 Apaches per year.

APACHE PRODUCTION

Question. Under the current budget plan, when will the last Apache come off the production line and when will Apache Longbow production begin?

Answer. Currently, the last Army procured AH-64A will be delivered in August 1995. AH-64D Longbow production begins in February 1996 with first delivery in March 1997.

Question. Does the "production gap" in the current program concern you?

Answer. Yes, we are concerned about the loss of skilled laborers at McDonnell Douglas Helicopter Company and the possible increased costs to the AH-64C/D program if foreign military sales are not adequate to fill the gap.

Question. What will the production gap "cost" the Army if it is not filled?

Answer. If there are no additional foreign military Apache sales, then the additional costs to the Longbow program associated with a 19 month production delivery gap is estimated to be \$400 million.

Question. What alternatives are currently being considered to remedy this situation?

Answer. The only affordable solution to this problem is foreign military sales. We are attempting to make two pending foreign military sales cases more attractive to gain an early commitment by one or both countries.

Question. What are the implications of the various alternatives on the fiscal year 1994 budget? What would they cost in years beyond fiscal year 1994?

Answer. There are no implications on the fiscal year 1994 budget. Costs beyond fiscal year 1994 are dependent on the gap's length and costs associated with keeping McDonnell Douglas' Mesa, Arizona, facility solvent until AH-64D Longbow deliveries begin.

Question. The Army recently received an unsolicited proposal from Lockheed for remanufacture of Apache. Discuss this proposal and your evaluation of it.

Answer. Lockheed provided us a White Paper that outlined their proposal to remanufacture the Apache into the AH-64C/D configuration. My staff requested and received clarification of information provided in the White Paper. We have reviewed the White Paper but have not conducted any rigorous evaluation of it.

Question. What impact would this proposal have on the Apache industrial base?

Answer. The proposal by itself has no impact. However, if there were a competition for the AH-64C/D program and if Lockheed won, then it is reasonable to speculate that McDonnell Douglas Helicopter Company would be in a very tenuous business position.

Question. When will you respond to the proposal?

Answer. Since Lockheed has not submitted a proposal, we have nothing to formally respond to. However, if Lockheed desires to submit an unsolicited proposal, it will be properly reviewed by the Aviation and Troop Command in St. Louis, Missouri.

Question. What foreign sales are now under consideration for Apache and what is the likelihood of each?

Answer. Likely foreign military sales cases are for Korea and Kuwait. Possible foreign military sales cases are for Greece, Saudi Arabia, Egypt and the UAE. In addition, a commercial sale to the United Kingdom is possible under their on-going attack helicopter competition.

Question. If the Comanche program is canceled, what changes in the current Apache program would the Army consider?

Answer. None.

NATIONAL GUARD AND LIGHT UTILITY HELICOPTERS

Question. The Army's new program executive officer for aviation, Maj. Gen. Dewitt Irby, recently stated that the National Guard should take over the Army's light utility aviation mission. Does this position represent the official position of the Army and the Department of Defense?

Answer. The light utility helicopter (LUH) mission for the Army will be accomplished by three Corps stationed in the continental United States (CONUS). The National Guard will form two battalions and the US Army Reserve will form one battalion.

Question. Gen. Irby's statement seems to be based on the belief that the National Guard is more successful in getting Congressional support for unfunded programs. General Forster is this a sufficient rationale for assigning roles and missions for the Army?

Answer. The Army does not assign roles and missions based on how a program might be funded.

Question. What other reasons are there to assign the light utility helicopter mission to the National Guard?

Answer. The Total Army Analysis (TAA) process determines roles and missions. The TAA determined that the light utility helicopter mission will be a Corps level requirement. There is insufficient force structure in the Corps' Active Component units to resource the light utility mission (the three CONUS Corps are 86% Reserve Component), therefore, the LUH battalions will be resourced with Reserved Component.

UH-1 HUEY HELICOPTERS

Question. What are the Army's long range plans for the UH-1 light utility helicopter?

Answer. Presently, the Army plans to provide avionic mission package upgrades to the UH-1 to make the aircraft more compatible with the modernized fleet until these Vietnam era aircraft can be replaced by the UH-60 Black Hawk and a light utility helicopter (LUH).

Question. By refusing to fund any program to replace or extend the service life of the UH-1 and continuing to procure Black Hawks, is the Army going to end up replacing the Huey fleet with Black Hawks?

Answer. The UH-60 Black Hawk is the replacement for the UH-1 in all mission areas other than when a light utility helicopter is required. Continued procurement of the Black Hawks will allow for the retirement of UH-1s. The procurement of a LUH and the required number of Black Hawks would allow for the retirement of all the Vietnam era UH-1s. Until this procurement strategy is

completed, approximately 913 UH-1s will remain in the fleet through the year 2000. These aircraft will have avionics mission package upgrades to extend their service life until all the required Black Hawks and LUHs are procured and fielded.

Question. Are there not existing requirements and missions for utility helicopters for which the Black Hawk represents an "over-kill" the capability?

Answer. Yes. The UH-1, with planned replacement by a light utility helicopter (LUH), is used for light cargo/logistics hauls, liaison, courier, command support, general support task, and other secondary utility missions at the Corps level which do not require the lift capabilities of the UH-60 Black Hawk.

Question. How many helicopters are required for such mission requirements?

Answer. 131 light utility helicopters are required for this mission.

Question. In order of priority, what are the most urgent concerns/deficiencies/improvements in the Huey fleet that would have to be satisfied by a Huey replacement or service life extension program?

Answer. There is no requirement for a UH-1 service life extension program (SLEP) because of the strategy to continue to procure UH-60 Black Hawks and retire UH-1s. Currently, only avionics upgrades are planned for the UH-1s. However, should a UH-1 SLEP be required, the concerns/deficiencies/improvement objectives would be in the following priority order: extend service life, lower operating costs, improve availability, minimize development and training costs, and logistics commonality with other aircraft in the Army fleet.

Question. At least three UH-1 service life extension proposals are being made: the "Huey 800", the "Huey II", and the "Ultra Huey". There is also at least one proposal for a Huey replacement, the "Panther 800". What is your assessment of these proposals?

Answer. The three UH-1 SLEP proposals being made by industry: "Huey 800", "Huey II", and "Ultra Huey" are "off the shelf" recommendations that modify the UH-1 and were developed by industry based on their capability to develop the product. These options were not developed from an Army requirement. The Army has not assessed the UH-1 SLEP proposals other than noting the capabilities they offer. There has not been a study done to compare these aircraft. The utility mission requirement is satisfied by the UH-60; the light utility helicopter requirement is being defined by TRADOC at this time. The Panther 800 is an "off the shelf" aircraft that could be a candidate for the light utility helicopter requirement.

Question. Provide for the record a comparison of these proposals as you currently understand them?

Answer. The Army has not assessed the UH-1 commercial upgrades offered other than noting the advertised performance characteristics and capabilities.

Question. What are the actual annual unit operating and support costs of the Black Hawk and the UH-1H, and what are the corresponding costs advertised for the various Huey replacement/service life extension program proposals?

Answer. The following chart, with the addition of the UH-60 Black Hawk column, is taken directly from the 26 February 1993 issue of the Helicopter International Association Convention News. The Army has not validated any of the UH-1 data used in the chart.

| UH-1H | | | UH-1/T800 | | UH-1 HP | | UH-1/T700 | | UH-601 | |
|--|--|--|----------------|--|----------------|--|----------------|--|----------------------|--|
| Huey/Iroquois | | | Huey 800 | | Huey II | | Huey II | | BLACK HAWK | |
| Bell | | | LHTEC/GHT | | Bell/Bogan | | UNC/GE | | Sikorsky/GE | |
| [20 Oct 58 (XH-40)] 12 Jun 92 | | | 12 Jun 92 | | 13 Aug 92 | | 21 Aug 92 | | Nov 89 | |
| Engine | | | LHTEC | | Lycoming | | GE | | GE | |
| Model | | | T800-LHTR-800 | | T53-L-703 | | T700-701C | | T700-701C | |
| TBO | | | 3,000 hr | | On Condition | | On Condition | | On Condition | |
| Weight | | | 310 lb | | 545 lb | | 456 lb | | 456 lb | |
| Max t.o. limit (10 min) | | | 1,400 shp | | 1,800 shp | | 1,890 shp | | 1,890 shp | |
| Max cont power | | | 1,250 shp | | 1,500 shp | | 1,662 shp | | 1,662 shp | |
| Trans t.o. limit (5 min) | | | 1,160 shp | | 1,290 shp | | 1,290 shp | | 1,290 shp | |
| Power output (4,000 ft PA, 95 deg F) 994 shp | | | 947 shp | | 1,298 shp | | 1,301 shp | | 3,400 shp | |
| Weights | | | | | | | | | | |
| Max gross: | | | Internal | | 9,500 lb | | 10,500 lb | | 10,500 lb | |
| | | | External | | 9,500 lb | | 10,500 lb | | 22,000 lb | |
| Empty (Incl fluids, troop seats) | | | 5,269 lb | | 5,269 lb | | 5,677 lb (2) | | 11,602 lb | |
| Useful load | | | 4,231 lb | | 4,072 lb (1) | | 4,873 lb (2) | | 10,398 lb | |
| Fuel load | | | 1,435 lb | | 1,435 lb | | 1,435 lb | | 2,338 lb | |
| Fuel consumption | | | | | | | | | | |
| SFC: Max cont pwr. | | | 0.60 lb/shp/hr | | 0.59 lb/shp/hr | | 0.46 lb/shp/hr | | 0.46 lb/shp/hr | |
| Cruise (700 shp) | | | 0.74 lb/shp/hr | | 0.78 lb/shp/hr | | 0.57 lb/shp/hr | | 0.51 lb/shp/hr | |
| Typical (cruise, 100-110 kt) | | | 80 gph | | 55 gph | | 60 gph | | 129 gph | |
| Performance | | | | | | | | | 118,000 lb, std dawl | |
| Hover ceiling (9,500 lb, IGE: std day) | | | 10,800 ft | | 15,000 ft | | N/A | | N/A | |
| Service ceiling(max cont pwr std day) | | | 4,100 ft | | 10,700 ft | | 10,500 ft | | 10,400 ft | |
| Max cruise (component life limit) | | | 12,500 lb | | N/A (3) | | 20,000+ ft | | 18,400 ft | |
| | | | 110 kt | | 110 kt | | 120 kt | | 120 kt | |
| Price | | | | | | | | | Total Aircraft Cost | |
| Basic (4) | | | N/A | | \$750,000 | | \$1M | | \$6,277M | |
| W. options | | | N/A | | \$835,000 | | \$1.5M | | N/A | |
| Mantn man-hours per flight hr (5) | | | 5 | | N/A | | 2.15 | | 3 | |
| DOC (5) | | | \$812 | | \$700 | | N/A | | \$1,233 (FY94\$) | |

- (1) Empty weight of the Huey 800 demonstrator was 5,260 lb with the T53 engine and is 5,105 lb with the T800.
- (2) Estimate based on the 1988 Bell/GE study which determined that the T-700 engine would add about 50 lb to the basic aircraft weight. If the engine oil tank is removed from the Ultra Huey, its gross weight would be nearly equal to that of the Huey II. Empty weight of the Ultra Huey demonstrator aircraft is 5,718 lb with T700-700 engine.
- (3) LHTEC/GHT is using a maximum operating altitude of 20,000 ft. The U.S. Army limit for the standard UH-1H. This is based on a steady reduction of Vne as altitude increases. At 20,000 ft Vne is approximately 65 kt the best rate of climb speed.
- (4) All prices are ballpark estimates. Basic price does not include installation, which could be done by the customer or an authorized installation center. Actual prices will be subject to negotiation, number of aircraft, condition of aircraft, and additional equipment.
- (5) These are also ballpark estimates. Conflicting data from various sources and inconsistent assumptions make these particularly difficult to compare.

NEW TRAINING HELICOPTER

Question. On March 30, Bell Helicopter Textron was selected as the contractor for the New Training Helicopter (NTH). How does the basic contract, and options, compare to the amounts appropriated in fiscal years 1992 and 1993 for this program and with your proposed budget for fiscal year 1994?

Answer. All proposals received from competitors in the NTH procurement differed from the budget that had been planned, appropriated, and proposed. In the case of the eventual winner, Bell Helicopter Textron Incorporated (BHTI), total funds appropriated in fiscal year 92 and fiscal year 93 and proposed in fiscal year 94 were less than the necessary \$38.7 million to pay for the total program.

Congress had appropriated \$23.5 million for the program in fiscal year 92 and \$44.9 million in fiscal year 93. Prior to signing the contract on March 30, 1993, an additional \$9.9 million was reprogrammed into the program by the Army for each of fiscal year 92 and fiscal year 93. The Army went on contract with BHTI for \$32 million for Lot I (39 helicopters and 5 Cockpit Procedures Trainers (CPT) and \$53 million for Lot II (63 helicopters and 4 CPTs), for a total of \$85 million. The remaining balance of the fiscal year 92 and fiscal year 93 funding (\$3 million) paid for product management and administration.

The Lot III option of 55 helicopters and 3 CPTs will cost the Army \$18.9 million more than the \$29.3 million requested in the fiscal year 94 budget. Lot III will complete the requirement for 157 NTHs and 12 CPTs.

Question. Since acquisition costs have turned out to be about \$40 million greater than expected, what study has the Army done to ascertain that this program is still cost-effective?

Answer. The Army compared the life cycle cost for the selected Bell helicopter proposal with the projected NTH estimate. Though the Bell 206 costs about \$40 million more in procurement costs, this cost is offset by an increase in Operation and Support (O&S) cost savings such that the program pays for itself (breakeven point) in the same fiscal year as the NTH estimate (mid fiscal year 96). The total program (20 year life cycle) savings for the selected helicopter, however, is approximately \$195 million greater than the NTH estimate (\$930 million NTH estimate vs. \$1.125 billion).

Question. Given force structure reductions, why not buy fewer aircraft rather than spending additional funds?

Answer. The Army now trains with 229 UH-1's and requires only 157 NTHs to train the number of aviators required in the projected force structure. Force structure reductions were programmed prior to the development of the NTH requirement of 157 helicopters. The requirement for the NTH was determined against the Base Force, 4 Corps, 20 Divisions, and 3 Theater Aviation Brigades. Additionally, budget constraints have prevented the Army from training the necessary number of aviators each year. Attrition of trained aviators due to planned and unplanned retirements and reduction-in-forces (RIF) has further exacerbated the filling of tactical aviation positions. Hence, the requirement for 157 NTHs remains valid.

Question. Provide for the record the contract details for this program, including contract type, costs and quantities (including options), and delivery schedule.

Answer.

Contract type: Firm Fixed Price.

Cost: \$84,925,688 (fiscal year 92 and fiscal year 93 funds/Lots I & II)

Quantities: 102 helicopters (54 Visual Flight Rules (VFR), only 45 Instrument Flight Rules (IFR) equipped 3 IFR capable, but not equipped) 9 Cockpit Procedures Trainers (CPT)

Option: fiscal year 94 funds/Lot III

Cost: \$47,224,667

Quantities: 55 helicopters (38 VFR, only 17 IFR capable, but not equipped) 3 CPTs

Contract also has an unpriced 100% option for 157 helicopters and 12 CPTs.

Delivery of first aircraft is scheduled for October 1993. Monthly quantities ramp up to no more than 6 helicopters per month. Training Initial Operational Capability is scheduled for April 1994 when 29 helicopters and 6 CPTs will be on hand at Fort Rucker to train the first class on the NTH. Delivery of the final Lot III aircraft will occur in July 1996.

MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)

Question. The Army has been procuring the Multiple Launch Rocket System under a series of successful multiyear contracts. The current such contract ends in fiscal year (FY) 1993. What is the procurement strategy for MLRS for FY 94 and beyond?

Answer. Because of the reduced European threat and ongoing reductions in the Army force structure, sufficient Basic MLRS tactical rockets have been procured to meet current contingencies. Also, the FY93 rocket procurement will provide the Army with sufficient practice rockets to meet training requirements beyond FY00. As a result, MLRS rocket funding from FY94-97 is limited to a production base sustainment program. This program will exercise the production line and maintain a warm base until MLRS Sense and Destroy Armor (SADARM) and Extended Range-MLRS (ER-MLRS) production is initiated. By maintaining this warm production base, rocket line recertification will not be required. Additionally, this manufacturing capability would remain responsive to unforeseen contingencies.

Question. The Army is developing two additional rockets for the MLRS system, ER-MLRS and MLRS SADARM. What are the current milestones for these programs and when will each enter production?

Answer. The ER-MLRS Engineering and Manufacturing Development (EMD) contract was awarded to Loral Vought Systems (LVS) in December 1992. Low Rate Initial Production (LRIP) is currently scheduled for FY98 with the Full Rate Production Decision scheduled for FY99.

MLRS and 155mm SADARM are progressing toward a combined Milestone IIIA for an LRIP decision. The Army System Acquisition Review Council (ASARC) is scheduled for August 1993 followed by

the Defense Acquisition Board (DAB) in September 1993. MLRS SADARM, by design, is six months behind 155mm SADARM. Accordingly, MLRS SADARM will only present emerging data at the September 1993 DAB in support of the 155mm IIIA decision. MLRS SADARM will complete contractor technical testing in the July-August time frame. This data, as well as any due outs from the September 1993 DAB will be presented at a Conventional Systems Committee (CSC) In-Process Review in the December 1993-January 1994 time frame to enter LRIP in October 1994. The Milestone III Full Rate Production Decision DAB for the MLRS and 155mm SADARM programs is scheduled for June 1995. Award of the MLRS SADARM Full Rate Production contract is scheduled for December 1995.

Question. At what annual procurement rates will the Army be buying ER-MLRS and MLRS SADARM?

Answer. Fiscal years 95-99 were not addressed in the FY94 President's Budget due to the requirement for a bottom-up review. Outyear production rates of ER-MLRS and MLRS SADARM will be developed upon completion of that review.

Question. The FY94 budget funds no MLRS rocket procurement. How does the Army plan to retain a MLRS rocket production capability until ER-MLRS and ER-SADARM enter production?

Answer. The Army has initiated funding for a FY94-97 MLRS rocket production base sustainment program. This program will exercise the production line and maintain a warm base until MLRS SADARM and ER-MLRS production is initiated. By maintaining this warm production base, rocket line recertification will not be required. Additionally, this manufacturing capability would remain responsive to unforeseen contingencies.

Question. What will it cost to retrain the skilled personnel that will be lost during the production gap?

Answer. The Army is attempting to minimize personnel retraining costs by implementing a rocket production base sustainment program from FY94-97. The contractor is also considering retaining a number of personnel currently working on the rocket line to work in other capacities after the FY93 rocket procurement is completed. These personnel would form the core work force during ER-MLRS and MLRS SADARM LRIP and would train new personnel when SADARM and ER-MLRS Full Rate Production is initiated. Assuming an annual procurement of 6,000 to 12,000 rockets during Full Rate Production, the initial estimate of the cost to retrain personnel is approximately \$7 million. However, the Army and the MLRS contractor are conducting a more detailed study to better quantify this as well as other production restart costs. Results from this study are expected by August 1993.

Question. What other costs will be associated with restarting production?

Answer. Assuming MLRS SADARM production and continuing availability of FY94-97 rocket line sustainment funding, approximately \$19M additional will be required to fund line maintenance/restart. Without MLRS SADARM production, approximately \$43.6M will be required. This cost includes funding a rocket base sustainment program during the rocket production gap as well as retraining personnel. However, the Army and the MLRS contractor

have initiated a study to better quantify these costs. Results from this study are expected by August 1993.

Question. What consideration has been given to procuring additional training rockets, in anticipation of future requirements, to retain the production base?

Answer. The procurement of additional practice rockets was considered as an alternative to retain the production base; however, with the FY93 rocket procurement, the Army will have sufficient practice rockets to meet current training requirements beyond FY00. As a result of this large inventory and the annual funding that would be required for additional practice rocket procurements, this alternative was not adopted. Instead, the Army has initiated funding for a FY94-97 MLRS rocket production base sustainment program. This program will exercise the production line and maintain a warm base until MLRS SADARM and ER-MLRS production is initiated.

Question. What would it cost to implement such a proposal?

Answer. An additional \$70.3 million is required above the President's Budget to procure 12,000 rockets (10,998 practice; 1,002 tactical) in FY94. Additional funding would also be required in subsequent years to maintain this level of production until MLRS SADARM and ER-MLRS Full Rate Production quantities reach this level.

Question. The MLRS launcher unit cost goes from \$3.3 million in FY93 to \$6.4 million in FY94. Why?

Answer. The launcher FY94 unit cost increase is due to the following factors:

The FY93 procurement is the last year of the multiyear contract whereas FY94 is an annual procurement.

Since rockets are not being procured in FY94, an increased overhead burden is being borne by the launchers.

The cost of the Bradley chassis will increase significantly in FY94 due to reduced Bradley Fighting Vehicle production.

The launcher quantity has been reduced from 44 in FY93 to 32 in FY94.

HELLFIRE MISSILE SYSTEM

Question. What is the status of the production decision for Hellfire II?

Answer. A May 14, 1993 In-Process Decision Review resulted in a decision to proceed with full-scale production of the Hellfire II missile.

Hellfire is an air-to-ground missile system which is the primary anti-tank armament for the AH-64 Apache Helicopter. The Army's fiscal year (FY) 1994 budget request for Hellfire is \$92.5 million to procure 1785 missiles.

The Army is scheduled to make a production decision on the Hellfire II, an improved version of Hellfire at the end of this month.

Question. Do you expect a favorable decision?

Answer. Yes, the Army contracted with Martin Marietta Corporation of Orlando Florida on May 26, 1993 to build 3,905 Hellfire II

missiles for both the Army and Navy (USMC) at a cost of approximately \$140 million using existing contract options.

Question. What is the total inventory objective for Hellfire II including the Marine Corps?

Answer. The total inventory requirement for Hellfire II, which is tied to the fielding of AH-64 Apaches, OH-58D Kiowa Warriors, and RAH-66 Comanches, has not been finalized as yet. Once modernization plans for these aircraft are finalized, then a total inventory requirement can be determined. The war reserve requirement for Hellfire is based on the Army's methodology for determining the Minimum Distribution System Quantity (MDSQ) for munitions. MDSQ includes two combat loads for each operational aircraft. Current planned procurement of 4734 Hellfire IIs will limit the number of missiles fielded to OH-58D Kiowa Warrior units and Apache battalions. Ideally, the Army plans on fielding those Hellfire IIs procured to "first to fight" units. The USMC plans to procure a total of 3231 Hellfire IIs. The actual USMC requirement is 9458 missiles by FY 99. The USMC Hellfire II requirement identifies a programming objective based on a validated warfighting scenario for a given period of time. This process provides a standardized methodology that is used to determine procurement objectives and balance inventory requirements for Department of the Navy aircraft. All training expenditures are drawn from existing war reserve stocks.

Question. How many Foreign Military Sales (FMS) quantities are assumed in fiscal year (FY) 1994?

Answer. No FMS quantities are assumed for FY 94.

Question. What do you believe the potential Foreign Military Sales (FMS) market may be for Hellfire II over the next several years?

Answer. The potential FMS market for Hellfire II is anticipated to be 3,000 missiles in FY 95 and 3000 missiles in FY 96.

Question. Budget justification material for the missile shows that the production rate for Hellfire II missiles will ultimately ramp up to 455 missiles per month, 85% of the stated maximum production rate. Why is it necessary to produce missiles at this rate only to drastically ramp back down in the outyears?

Answer. The present not-to-exceed (NTE) options (FY 93-FY 96) with Martin Marietta Technologies are based both on a quantity range and a specified ramp-up rate as shown in the Production Schedule (P-forms, Exhibit P-21) (i.e., ramp up to a combined Army and Navy rate of 445 missiles per month).

Question. Why not smooth the production profile to 300 missiles a month and retain the option of producing Hellfire II missiles from a warm production line beyond 1996?

Answer. We cannot adjust the Hellfire II program as suggested without losing the competitively derived NTE options and incurring significant program cost growth. A change in the production rate and schedule would invalidate all NTE options and the re-opener clause contained in the FY 92 Initial Production Facilities/Production Qualification Test Contract. The impacts of this adjustment would be as follows:

FY 93 production costs would be significantly greater. Without entering into negotiations with the contractor, it is not possible to

determine a credible estimate as to the impact of invalidating the NTE options. The contractor maintains that the current option prices are substantially below his cost and the condition continues to worsen as overhead increases due to a declining production base.

The FY 93 contract award would be delayed by seven months. Such a change would require preparation of a new Request for Proposal, the contractor's response, additional price audits, technical factfinding, and contract negotiations. If the award is delayed by seven months, Army FY 91 Supplemental and Navy FY 91 funds planned for use on the contract will expire. This will result in a reduction of 502 missiles for the Army and 296 missiles for the Navy that would otherwise be procured.

Question. The budget request contains \$4.2 million for the disposal of tooling and test equipment. Explain to the Committee the basis of this request.

Answer. The \$4.2 million is for disposal of the tooling, test equipment and other government property at Rockwell International Corporation when the production for the Interim Hellfire Warhead missile line shuts down.

Question. Is the Department contractually liable for the disposal of this equipment?

Answer. Yes.

Question. What is the total expense involved in the disposal of Hellfire tooling and test equipment?

Answer. The disposal expense is estimated to be \$4.2 million in FY94 related to Rockwell International Corporation production and \$4.3 million in FY95 related to Martin Marietta production.

Question. Has consideration been given to storing the equipment rather than destroying it?

Answer. Yes, some of the equipment will be relocated to Anniston Army Depot for use in a depot maintenance program. In accordance with guidance provided by memorandum from Mr. Godwin, Under Secretary of Defense (Acquisition and Logistics), dated November 25, 1986, subject: Government Property in the Possession of Defense Contractors, the remainder will be disposed of as excess government property.

Question. Why is it necessary to setup an organic depot capability for the Improved Hellfire Warhead Tactical and Training missiles at this time?

Answer. The need for an organic depot capability for Hellfire is derived from Department of Defense Instruction 5002 Part 3 and Part 7 that directs post production support. As a "certified round", Hellfire does not require any maintenance support below the depot level.

Question. Have you considered contracting with the producers for this effort?

Answer. Contractor support utilizing the ongoing production base has satisfied depot maintenance requirements in the past; however, with the last missile production buy in FY95, a post-production support capability is required. Contracting with the Hellfire producers for this capability was considered and determined to have a greater Operations and Support cost than establishing and sustaining an organic capability. Therefore, a decision has been made to establish an organic depot maintenance capability at Anniston Army Depot.

Funds are required for Depot Maintenance Plant Equipment, Test Program Sets, special tooling and fixtures, and depot maintenance work requirements.

TOW 2 MISSILE

Question. It is the Committee's hope to engage in a discussion on the wisdom of shutting down TOW missile production line in fiscal year 1994 when both the Army and Marine Corps are far short of their respective inventory objectives. However, it is the Committee's understanding that the Army now plans to discontinue TOW II production immediately and use \$130 million of appropriated 1993 funds as a source for the omnibus reprogramming. Is this accurate?

Answer. No. The Army is considering using a portion of these funds to pay high priority bills and the Department is planning to use \$48M of the appropriated funds to buy TOW 2A missiles for the USMC.

The TOW missile (Tube-launched, Optically Tracked, Wire-Guided Missile System) is designed to fulfill the heavy antitank assault weapon system requirement. The fiscal year 1994 budget request for the TOW missile is \$25.3 million for plant closure and production support of fiscal year 1993 deliveries. . .

Question. Explain in detail how the Army intends to use the remaining fiscal year 1993 funds that are currently on hold by OSD?

Answer. The \$48M, currently on OSD withhold, will be part of the omnibus reprogramming and is intended to be used by the Department to buy TOW 2A missiles to meet USMC requirements. The balance will fund missiles for the Army.

Question. Is there currently a production break in the program as a result of this proposal?

Answer. No. It is the Department's intention to procure sufficient TOW 2B missiles for the Army with FY93 funds to preclude a break in production.

Question. When do you intend to award the 1993 production contract?

Answer. The Army awarded the 1993 production contract in late May 1993.

Question. It is also the Committee's understanding that fiscal year 1994 potential TOW FMS sales total almost 10,000. Is this accurate?

Answer. Yes.

Question. What effect would the Army's reprogramming proposal have on these sales?

Answer. None.

Question. Explain to the Committee why this proposal should be viewed as a sound decision.

Answer. While the Army's projected TOW inventory will not achieve the TOW combat missile inventory requirements, the Army has deemed the halting of missile production after the FY93 buy a prudent risk given the threat assessment, projected force package fills, and the limited Total Obligation Authority. Because the Marines are severely short TOW 2As, we will sustain produc-

tion and balance the needs of both services within the total TOW funds appropriated in FY93.

JAVELIN MISSILE

Question. The Javelin missile replaces the Dragon system as the Army's principal infantry anti-tank weapon. The fiscal year 1994 budget request for Javelin is \$207.3 million for 1000 all up rounds and 87 Command and Launch Units in the initial year of production. What is the total inventory objective for Javelin?

Answer. The Army's acquisition objective is 58,000 rounds and 5,000 Command and Launch Units (CLU).

Question. When would you expect an FMS market to develop?

Answer. Several countries have indicated an interest in Javelin. However, the Army does not anticipate FMS being available till after the Full Rate Production decision in April, 1996.

Question. What will be the maximum production capacity of the producer/s?

Answer. Based on the current program and funding levels, the contractor will be annually facilitized to ramp up to a production rate of approximately 700 missiles per month.

Question. Bring the committee up to date on the status of development testing on the Javelin. What has the performance of the missile been to date?

Answer. To date, there have been 14 successes of 19 attempts in the Preproduction Qualification Flight Test program. The missile has been man-fired, and has hit both moving and stationary targets at a variety of ranges. Missiles have been both hot and cold conditioned, and subjected to five foot drops and rail impacts.

Question. When is operational testing to begin?

Answer. Training will begin in July, 1993, with the Initial Operational Test and Evaluation (IOTE) beginning in September, 1993.

Question. Why is technical and user testing running concurrently with operational testing?

Answer. The primary overlap of the Technical Test/User Test (TT/UT) and IOTE is six rounds scheduled for tropic/arctic testing in November/December, 1993, to coincide with the local extreme conditions in Panama and Alaska. Most of the TT/UT will be complete prior to IOTE.

Question. Do you have adequate resources to conduct IOT&E?

Answer. The Javelin RDTE budget includes adequate resources to provide the hardware to support IOTE. Conduct of the test itself is funded by the U.S. Army Operational Test and Evaluation Command.

Question. What level of risk would you assign to the development and test schedule presented in the justification material?

Answer. There is a moderate to high risk in starting IOTE in September, 1993, as currently planned.

Question. When do you plan to award the long lead contract for initial production?

Answer. The Army plans to award that contract in July, 1993.

Question. Do current test results suggest any significant design changes to the missile?

Answer. No major design changes to the missile are necessary.

ARMY TACTICAL MISSILE SYSTEM (ATACMS)

Question. Last year you projected a fiscal year 1994 procurement of 390 Army Tactical Missile System missiles. Why does your actual budget fund only 255?

Answer. Prior to submission of the FY94 budget by the Department, the Army based on the lessons learned from Operation Desert Storm conducted an assessment of the Deep Battle programs and determined the need to commit to a Product Improved Army TACMS, in addition to TSSAM/BAT and the Army TACMS Block I. In order to stay within the Total Obligation Authority for the Deep Battle programs previously submitted to OSD, the Army TACMS planned FY94 buy quantity was broken up into a two year buy. This helped free up funds to initiate the Army TACMS P3I development effort in FY94.

Question. How does the budgeted quantity compare with the fiscal year 1994 option quantity on your current contract and what are the financial consequences of failing to procure this quantity?

Answer. The original option quantity was for 403 missiles when compared to the current budgeted quantity of 255. This increased procurement unit cost from \$547K to \$618K.

Question. What procurement quantities are now projected for Army TACMS Block I missiles in fiscal years beyond 1994? Provide a procurement profile for the record.

Answer. In fiscal years beyond 1994, FY 95 acquired 148 (Balance of FY 94 stretch out); and an additional 50 Block I missiles were added in FY 96 to keep the production line open until the Pre-Planned Product Improvement (P3I) Anti-Personnel/Anti-Materiel (APAM) missiles were ready for production. Block I Procurement Profile follows:

| | FY 94 | FY 95 | FY 96 |
|-----------------------|---------|---------|--------|
| \$ Millions..... | \$152.6 | \$116.0 | \$40.0 |
| Quantity Block I..... | 255 | 148 | 50 |

Question. What is the procurement strategy for Army TACMS for fiscal 1994 and beyond?

Answer. The Army's strategy slows production of the Army TACMS Block I missile for FY94 through FY96, as shown in the procurement profile above, and allows for the cut-in of the Army TACMS P3I missile without creating a production gap.

Question. The R&D budget includes \$25.8 million for Army TACMS P3I: What is this program and why is it required? What are the milestones for this program? For the record, what is the R&D and procurement profile for this program (including quantities)? What changes will be made in the Block I missile for the P3I program? What will be the difference in unit cost? What is the plan for transitioning from Block I Army TACMS to Army TACMS P3I production?

Answer. The Army TACMS P3I program responds directly to deficiencies noted during Operation Desert Storm actions against high value/high priority, short dwell time targets such as Tactical Ballistic Missile Launchers at ranges of interest. These deficiencies

generated the urgent need for weapon systems with a precision strike capability at greater range.

In order to provide for greater accuracy at extended ranges, the Army TACMS P3I program modifies the current Block I missile by integrating the Global Positioning System (GPS) into the missile guidance section to achieve accuracies inherent to GPS technology independent of range. Additionally, to achieve a greater range capability, APAM warhead section will be downloaded from 950 M74 bomblets to approximately 275 M74 bomblets. This reduction in bomblets, combined with significantly improved accuracy provided by GPS, effectively doubles the range of the current Block I missile with no degradation in effectiveness and significantly improves missile survivability.

The FY 94 R&D budget funds a design, development and test program to demonstrate this improved capability in the DOD Joint Air, Land and Sea Precision Strike Demonstration (JPSD) scheduled during 4th Qtr, FY 94. The FY 94 budget also funds the start of the Army TACMS P3I APAM Engineering and Manufacturing Development (EMD) Program.

Milestone:

Fiscal year 94—JPSD Contract Award—Nov 93; Milestone IV—Dec 93; P3I APAM EMD Contract Award—Feb 94.

Fiscal year 95—Continue EMD; Begin Ground Test, Production Prove-Out Testing.

Fiscal year 96—beyond—Complete ground testing and PPT; Initiate and complete Pre-Production Qualification test (PPQT); Production Cut-in of P3I APAM EMD—Feb 97.

(Dollars in millions)

| | FY94 | FY95 | FY96 | FY97 | FY98 | FY99 | To
complete | Total |
|----------------|--------|--------|--------|-------|-------|-------|----------------|--------|
| RDTE: | | | | | | | | |
| P3I APAM | \$25.8 | \$37.4 | \$19.3 | \$4.5 | | | | \$87.0 |
| PROC: | | | | | | | | |
| P3I APAM | | | 88.2 | 98.3 | 109.6 | 112.2 | 376.1 | 784.4 |
| Quantity | | | 100 | 100 | 120 | 120 | 360 | 800 |

By downloading the Block I APAM warhead from 950 to 275 bomblets, the range will be effectively doubled. A GPS receiver and antenna system will be integrated to significantly improve accuracy through in-flight navigation corrections to an improved inertial measurement unit. The increased accuracy and bomblet distribution pattern will result in the same effective kill probability against point and area target arrays as the current Block I missile. Changes to the missile guidance software will also reduce time of flight to target.

The budget estimate shows essentially the same unit cost for both configurations. The cost of additional GPS components is estimated to be offset by the reduced bomblet payload.

The P3I APAM program will develop engineering changes and modifications to the Block I missile currently in production. Approved changes will be cut into ongoing production lines without

interruptions, maintaining production quantities to satisfy user requirements. No retrofit of missile assets is planned.

MI TANK UPGRADE PROGRAM

Question. After years of disagreement between Congress and the Department of Defense, a program to upgrade M1 tanks to M1A2 tanks has finally been developed and funded. The fiscal year (FY) 1994 budget includes \$79.7 million to continue this program. Please describe the status of this program and current plans for completing it.

Answer. In March 1992, the Army approved the Low Rate Initial Production (LRIP) of 62 M1A2 tanks. Sixty of these tanks have been delivered through April 1993. The last two "new" M1A2s for the Army are scheduled for delivery in October 1993 and April 1994. On December 18, 1993, the Office of the Secretary of Defense approved Army plans to upgrade 998 M1 tanks to the M1A2 configuration. This would field the M1A2 tank throughout the Continental United States (CONUS) Contingency Force. The FY94 budget continues funding for the M1 to M1A2 upgrade program. The upgrade is split into two phases. Phase I procures 72 upgrades in 1994 and 134 upgrades in 1995 for a total of 206 upgrades. Combined with the 62 new production M1A2s, Phase I will field one heavy division. Phase II, consisting of 792 upgrades, completes the fielding of the CONUS Contingency Force. Since the approval of the upgrade in December, we have implemented plans to complete testing of the M1A2, define the upgrade process and begin procurement of long lead materiel for the production line.

To complete the development of M1A2 tank, a ten-shot Live Fire Test program is being conducted from March through August 1993. Three shots have already occurred. An Initial Operational Test and Evaluation (IOTE) at the Battalion/Task Force level will be conducted from April through December 1993 including training. Eighteen of the 60 LRIP M1A2 tanks have been issued to the 1st Cavalry at Fort Hood, Texas for the IOTE and training has begun. Training began in April and will be complete in August. The IOTE is scheduled for the period September-December 1993. Contracting actions to complete the development of the M1A2 logistics support package and to provide contractor logistics support to the test sites are also in process. A Milestone III Defense Acquisition Board review to approve full rate production for the upgrade program is currently planned for April 1994.

The basic upgrade concept is for Anniston Army Depot to receive older M1 tanks, strip the chassis to bare metal, reclaim/modify parts (such as the AGT 1500 engine) and supply the chassis and refurbished parts to General Dynamics Land Systems (GDLS) for assembly. At this point, the M1 chassis will be modified to the M1A2 configuration. GDLS will then fabricate a new turret and complete the process of assembling an M1A2 tank. Under the System Technical Support portion of the current Army Abrams Tank Production Contract (DAAE07-91-C-A037), GDLS is to define the upgrade manufacturing process for the M1A2 Upgrade Tank and establish a Technical Data Package. A letter contract (DAAE07-93-C-R034) was awarded to GDLS for four upgrade pilot tanks to enable us to

prove out the upgrade production line and conduct testing to verify performance. The first pilot is planned for delivery in March 1994.

Question. Phase I of the program modifies 206 tanks and four prototypes. What is the total procurement cost of this phase? How much has been obligated to date, and for what purpose? What is the procurement strategy for Phase I? When will the four prototypes be contracted for and delivered? What are the contracting and delivery milestones for the remaining 206 vehicles?

Answer. The total procurement cost of Phase I is \$772.7 million. This includes procurement of training devices and spares for the M1A2 tanks. The procurement funding for Phase I is shown below:

FISCAL YEAR (FY)

(Dollars in millions)

| | FY91 | FY92 | FY93 | FY94 | To
complete | Total |
|-------------------------------|---------|--------|---------|--------|----------------|---------|
| GA0750 Upgrade: | | | | | | |
| Advance | \$196.6 | \$54.2 | | | | \$250.8 |
| Regular | | 171.6 | \$160.5 | \$79.7 | \$88.6 | 500.4 |
| GB1302 Training Devices | | | | 13.8 | 5.1 | 18.9 |
| GA0151 Spares | | | | 1.6 | 1.0 | 2.6 |
| | | | * | | | 772.7 |

As of the end of April, \$65.7 million of the \$196.6 million FY91 Advance Procurement funding has been obligated for long lead materiel for Phase I. \$137.4 million of the \$171.6 million FY92 funding has been obligated for pilot vehicles, long lead materiel and Depleted Uranium armor. The total FY93 obligation plan and status is shown below:

FISCAL YEAR 91 ADVANCE PROCUREMENT (\$196.6M)

(Dollars in millions)

| | Plan | Actual | Quantity |
|-------------------------------|--------|--------|----------|
| Vehicle | \$67.5 | \$15.8 | 210 |
| Armor | 35.6 | 0.0 | 240 |
| Engines | 12.3 | 5.9 | 12 |
| Transmission | 21.7 | 2.5 | 12 |
| Fire Control Components | 25.0 | 12.1 | 12-150 |
| Cannon | 20.7 | 19.8 | 210 |
| Final Drives | 2.1 | 2.1 | 210 |
| Gun Mounts | 4.7 | 4.7 | 210 |
| Basic Issue Items | 1.1 | 0.4 | 210 |
| Road Wheels | 1.9 | 1.9 | 210 |
| Communications | 0.9 | 0.0 | 210 |
| Driver Night Viewer | 0.7 | 0.0 | 210 |
| Gas Particulate Filter | 0.4 | 0.0 | 210 |
| Special Tools | 1.4 | 0.0 | 210 |
| Should Cost | 0.5 | 0.5 | n/a |
| Total | 196.6 | 65.7 | |
| Carryover | 0.0 | | |

FISCAL YEAR 92 ADVANCE PROCUREMENT (\$54.2M)

| | Plan | Actual | Quantity |
|---|--------|--------|----------|
| Contractor Furnished Materiel Commander's Control Handle | \$54.2 | \$0.0 | 210 |
| Commander's Independent Thermal Viewer Position/Navigation Unit | | | |
| Slip Ring Assembly | | | |
| Ammo Racks | | | |
| Total | 54.2 | 0.0 | |
| Carryover | 0.0 | | |

FISCAL YEAR 92 PROCUREMENT (\$171.6M)

| | Plan | Actual | Quantity |
|---------------------------------|--------|---------------------|----------|
| Vehicle (Pilots) | \$27.3 | ¹ \$91.7 | 4 |
| Armor (Salaries) | 7.0 | ¹ \$40.8 | n/a |
| Transmission | 7.8 | 0.0 | 12 |
| Special Tools | 4.2 | 0.0 | 210 |
| System Technical Services | 9.8 | 4.8 | n/a |
| Total | 56.1 | 137.4 | |
| Carryover | 115.5 | | |

¹ Note: The current plan is to de-obligate FY92 funding currently obligated for Long Lead Materiel and re-obligate with FY91 Advanced Procurement funding.

FISCAL YEAR 93 PROCUREMENT (\$160.5M)

| | Plan | Actual | Quantity |
|-------------------------------|--------|--------|----------|
| Armor | \$25.0 | \$0.0 | 120 |
| Vehicle Intercom System | 2.0 | 0.0 | 210 |
| Total | 27.0 | 0.0 | |
| Carryover | 133.5 | | |

The procurement strategy for the upgrade program builds on the 5 pilots and 62 new production M1A2s from the current production line. Four pilot upgrade tanks are currently being procured and will be used to define the upgrade process and prove out the production line. Phase I procures 206 upgrades, 72 in FY94 and 135 in FY95. Long lead materiel for all Phase I will be procured using FY91 and FY92 funding. Deliveries from Phase I will begin in October 1995 and end in September 1996. Phase II procurement will begin in FY96 (long lead materiel in FY95). Currently, Phase II will procure 792 upgrades and complete the fielding of the Continental United States Contingency Force.

A letter contract for four pilots was signed with General Dynamics Land Systems on February 16, 1993. The pilot tank deliveries are March 1994, May 1994, July 1994 and September 1994.

Key contract and delivery milestones for the upgrade program are shown below:

First Long Lead Materiel Contract—2d Quarter 1993.

Anniston Workload Begins—1st Quarter 1994.

Milestone III Production Decision—3d Quarter 1994.

Production Contract Award—3d Quarter 1994.

First Delivery of Upgrades—1st Quarter 1995 (Oct).

Last Delivery for Phase I—4th Quarter 1996 (Sep).

Question. Describe Phase II of the upgrade program and any current issues with it.

Answer. The total program upgrades 998 (not including 4 pilots) M1 tanks to M1A2 configuration. Phase I procures 206 upgrades (not including 4 pilots) in fiscal years (FY) 1994 and 1995. Phase II procures the remainder, 792 M1A2s, for the Continental United States Contingency Force. The two significant issues for Phase II are funding and production rate. We plan to resolve these issues during the development of the FY95 budget. We must balance the need to maintain a viable industrial base with the fiscal responsibility necessary in a time of reduced resources.

Question. A major purpose for the tank upgrade program was to preserve the industrial base for tank engineering and production. What industrial base concerns continue to be unsatisfied as the upgrade program emerges?

Answer. As the tank industrial base adjusts to significantly reduced yearly production rates, it is impossible to predict how the vendors will react. The most significant concern is the impact of Textrol Lycoming, the manufacturer of the AGT 1500 engine. The key concern is the engine recuperators. The improved laser welded recuperator is only available from Textron. Recuperators repaired at Anniston Army Depot require parts provided by Textron. Because we plan to use overhauled engines in the upgrade program and we have 840 serviceable spare engines in stock, new engine production is supported only by Foreign Military Sales.

Question. What actions, if any, are being contemplated to address these concerns?

Answer. We are assessing the performance and reliability of overhauled AGT 1500 engines in test tanks at Aberdeen and Yuma Proving Grounds as well as in tanks operating at the National Training Center. Results of this assessment will be available in December 1993 and will be used to determine the need for additional new or remanufactured engines not only for the upgrade program but across the entire tank fleet.

As production rates decline, we expect vendors to drop out or have problems. For example, we had previously bought out all known requirements for bearings prior to the upgrade program. Torrington Bearings no longer fabricates these bearings. The result is we now have to qualify a new source for bearings.

Question. The recuperator on the AGT-1500 engine on the M1-series of tanks has always had a high failure rate. Over the years, the Army has taken a series of steps to solve this problem. A recent General Accounting Office report noted that contractor officials have acknowledged that "not all of the recuperator problems have been resolved and, moreover, these problems may become more pronounced with the fielding of the heavier, fully-equipped M1A2 tank." What is the Army doing about this problem? What plans exist for the future?

Answer. The Army continues to address recuperator reliability through testing and improvements to the manufacturing process. In March 1989, the manufacture began using a laser-welding technique which reduced the failure rate of the recuperator. Testing of the laser-welded recuperators was included in the M1A2 technical

testing and has been conducted on 10 M1A2 vehicles. This testing resulted in four recuperator failures during 19,224 miles and 6,014 hours of operation. These test results demonstrated the need for additional design enhancements for laser-welded recuperators for heavier versions of the Abrams tank. The manufacturer has submitted an Engineering Change Proposal (ECP) for additional improvements to the laser-welded recuperator. Three improved recuperators have been tested with no failures during 31,552 miles and 2,362 hours of operation. The ECP is currently being reviewed for approval and implementation. The improved recuperator has potential for being included in some of the ongoing Foreign Military Sales of the Abrams tank, United States M1 to M1A2 upgrade program, and the Anniston Army Depot repair program for spares.

Question. Earlier this year, a proposal was made to the Kuwaitis to substitute a diesel engine for the current turbine engine. Where does this proposal stand? Does the Army support it?

Answer. A contractor, seeking to market the MTU 883 Diesel engine in Kuwait, wrote several Congressmen letters requesting their support. As a result, four Congressmen signed a letter to the Kuwait Minister of Defense encouraging Kuwait to consider installation of the MTU 883 engine in the M1A2 Abrams tanks Kuwait is purchasing from the United States. Subsequently, Kuwait inquired to the United States. Army concerning feasibility of installation of the MTU engine in the M1A2 tank.

In 1990 and 1991, the Army evaluated all available or developmental engines for current and future combat vehicles. That study examined eight engines for the Abrams tank, including the AGT 1500 turbine engine and the MTU 883 diesel. The results of the study indicated that the cost of replacing the complete propulsion system in the Abrams tank was estimated at \$1.3 billion dollars and would require a six year development effort. Based on the Kuwaiti inquiry and using data from this study, Program Executive Officer, Armored Systems Modernization evaluated what would be required if the engine was changed from an AGT 1500 to a MTU 883 for the Kuwaiti tanks. The result was a program cost of nearly \$600 million dollars and an equally lengthy development schedule.

The Abrams tank is designed for the AGT 1500 engine in terms of the propulsion system, supporting automotive subsystems, and vehicle structure. An MTU 883 replacement engine would require that all the subsystems and structures be reviewed for impact. Due to major differences in performance characteristics between the two engines, the integrated design of such components as air cleaners, exhaust system, cooling system, fuel system, electrical system, hydraulic system, the Nuclear, Biological, Chemical system and the hull structure would be effected.

The Army position is that there are no suitable alternatives to replace the AGT 1500 turbine engine, including the MTU 883 engine, due to engineering cost, schedule, and logistics impacts associated with a re-power program. This position was outlined in a response in March 1993 to Kuwaiti inquiry concerning the MTU 883 engine.

Kuwait signed the letter of offer and acceptance for purchase of the M1A2 on May 26, 1993, in which they indicated their decision to procure the M1A2 tank with its AGT 1500 turbine engine.

Question. The M1 engine contractor has been talking about a plan to procure new engines for Phase I of the M1 tank upgrade program and to use remanufactured rather than overhauled engines for Phase II of the program. Discuss the advantages and disadvantages of this plan.

Has the contractor made a written proposal to the Army? If not, when do you expect one?

What would such a plan do to the unit cost of the tank upgrade program in Phase I and Phase II? How would this compare to the cost of a new tank?

What would be the impact of such a plan on the tank industrial base, both contractor-owned and government-owned?

What is the Army currently doing to evaluate this proposal? When will the work be done?

How much has been obligated to date for engine-related costs for the upgrade program and what are the scheduled obligations for the remainder of the year?

What is the current inventory of new engines and of overhauled engines for spares? Given the engine "washout" rate to date, how long will these engines be available to satisfy spares requirements?

Answer. Based on current warfighting requirements, on-hand assets, and engine repair/overhaul capability, we have a sufficient number of tank engines. With no apparent need on the part of the Army for new engines (peacetime) and uncertain future Foreign Military Sales, it is unlikely that future new production will be required. There are approximately 9,276 AGT 1500 engines in the Army's inventory (7,828 engines in use, 851 in depot stock, and 597 in worldwide direct support stockage and war reserve). Of the 851 engines in depot stock, 253 are new engines and the remainder are overhauled. We do not yet have a significant history of turn in of uneconomically repairable engines. To date, only five AGT 1500 engines have been permanently "washed out" of the inventory.

The Army's current M1 to M1A2 upgrade program funds Anniston Army Depot overhauled engines at \$65-70 thousand each. Using new engines for Phase I of the upgrade program would add \$500-700 thousand to the unit cost of the tanks. We are concerned that the cost of an upgraded tank is rapidly approaching the cost of a new tank and may become unaffordable. Additionally, if the Army was to procure new engines for Phase I, the existing engines would still require overhaul/repair and would then be added to the Army's depot stock. Additional Operational and Maintenance Army funds would be required for this work and our quantity of engines in depot stock would exceed our maximum retention level (975).

Performance enhancements associated with new engines in Phase I are only temporary. As soon as an engine requires repair, it will be replaced with an engine from stock, i.e., an overhauled engine. Within a few years, all M1A2 will have overhauled engines. For this reason, the Army is assessing the performance and reliability of overhauled engines as a fleet issue rather than solely an upgrade program issue.

The Army has obligated \$5.9 million out of a planned \$12.3 million for 12 engines to seed the production line. Anniston Army

Depot will overhaul 27 engines in fiscal year 1993 at an estimated cost of \$65 thousand per overhaul.

The Army has not received a written proposal for new engine procurement for Phase I. The contractor has submitted a proposal for a remanufactured engine pilot program to support Phase II. This program would include the remanufacture of five engines, the development of the required processes/procedures and provide engines for Army durability testing prior to initiation of the Phase II upgrade. An evaluation will be conducted to assess the proposal's technical merit, cost effectiveness, and contribution to the upgrade program. Any further review will depend on the results of the evaluation.

BRADLEY PRODUCTION BASE SUSTAINMENT PROGRAM

Question. In fiscal year (FY) 1993, Congress appropriated \$125 million in initial funding for a program to sustain the industrial base for the Bradley Fighting Vehicle (BFV) family of vehicles so as to preserve the capability to produce additional variants in the future. The Committee gave the Army flexibility in allocating these funds between new production and modification. The FY94 budget includes \$192.4 million to continue this program. What is the Army's Bradley Production Base Sustainment Program in FY93 and FY94 and the long range plan?

Answer. In FY93, Congress appropriated \$125 million in initial funding for a program to sustain the industrial base for the BFV family of vehicles so as to preserve the capability to produce additional variants in the future. The Committee gave the Army flexibility in allocating these funds between new production and modification. The FY94 budget includes \$192.4 million to continue this program.

In FY93, the Bradley Production Base Sustainment Program will accomplish three goals: (1) Pilot remanufacture of six Bradley A0 models into the A2 High Survivability model at the FMC plant in San Jose, California. This pilot program will provide the necessary data for both the contractor and the government to establish a long-term production set-up to remanufacture additional A0 models into A2 models, and provide a basis from which a fair and equitable price can be achieved on future contracts; (2) Provide new production of 54 A2 High Survivability vehicles to maintain the industrial base until an A0 to A2 remanufacturing program can be implemented. These new production vehicles will replace those vehicles that were previously lost or destroyed (54) to enable the Army to reach its procurement objective of 6724 vehicles; and (3) Begin the long-term process of remanufacturing the basic A0 model into the most current Bradley configuration. Thirty-five vehicles will be upgraded in FY93 in order to maintain the industrial base until the start of the FY94 program deliveries. In FY94, the program continues with the remanufacture of 131 basic A0 model vehicles. Remanufacture will continue through FY96 with FY95 and FY96 funding. The A0 model remanufacturing process will continue until the Bradley block upgrade program is completed. This program provides for the remanufacture of Bradley A2 models into the A3 model starting in FY97.

Question. What are the critical components of the Bradley Fighting Vehicle (BFV) family of vehicles industrial base (government-owned and contractor-owned) and how does your plan go about sustaining them?

Answer. The following critical components sustain the Bradley industrial base activities through new procurement: High Survivability kits (application of alternate armor outside and spall liners inside the vehicle) to increase the basic protection level to 30mm; 600 horsepower engines; TOW II subsystems and TOW missile launchers; track; turret drive assemblies; periscopes, backup sights; and TEC 500-3 transmission upgrade kits. The A0 to A2 remanufacturing program will sustain the commercial industrial base both at the FMC San Jose, California and Atkin, South Carolina plants and their approved subcontractors (approximately 1100 suppliers in 40 states).

The Army's ongoing A1 to A2 model upgrade program is planned to continue at Red River Army Depot through fiscal year (FY) 1998. This program also sustains the industrial base with the procurement of 600 horsepower engines, TEC 500-3 transmission kits, the High Survivability kit, Vehicle Intercommunications System and TOW system modifications.

Additionally, the Army will continue research, development, test and evaluation on the Operation Desert Storm enhancements through FY94 and will budget for retrofitting of kits by Depot Field Teams in FY95. This program will sustain the commercial industrial base through the procurement of a laser rangefinder, Global Positioning System with compass, driver's thermal viewer, Combat Identification, and missile countermeasure device. This program will also benefit the government-owned base by employing depot field teams to install the ODS items and complete an equipment restowage and revised crew seating configuration.

The current A0-A2 remanufacturing program will not sustain the following capabilities: Hull and turret structure assembly and machining, 25mm M242 Bushmaster chain gun, transmission pump, driver's night viewer, power control unit and transmission housing machining. The six vehicle pilot program will demonstrate which components may be refurbished and which components must be replaced.

Question. The Bradley Fighting Vehicle family of vehicles is being considered for additional systems which might be procured in the future, such as Line of Sight Antitank (LOSAT), C2 Vehicle, Electronic Fighting Vehicle System (EFVS), and others. When are these systems expected to enter production and at what rates?

Answer. The following are the currently projected production start dates and quantities. Funding to support this profile will be considered during the fiscal year (FY) 1995-1999 program and budget reviews this summer and fall.

| | Fiscal
year 94 | Fiscal
year 95 | Fiscal
year 96 | Fiscal
year 97 | Fiscal
year 98 | Fiscal
year 99 |
|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| LOSAT | 0 | 0 | 0 | 0 | 0 | 0 |
| C2V | 0 | 0 | 0 | 5 | 14 | 32 |
| EFVS | 0 | 0 | 5 | 6 | 6 | 9 |

| | Fiscal
year 94 | Fiscal
year 95 | Fiscal
year 96 | Fiscal
year 97 | Fiscal
year 98 | Fiscal
year 99 |
|-------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Multiple Launch Rocket System | 34 | 32 | 42 | 33 | 39 | 38 |

Question. The Army's current plan includes the upgrade of the oldest A0 vehicles to the A2 configuration. Where will this work be performed and by whom?

Answer. The majority of the A0 to A2 model remanufacturing process will take place at the FMC plant in San Jose, California. Yet to be determined is which components must be repaired or rebuilt and who must perform the work. The key purpose to the six vehicle pilot program is to determine not only what components must be refurbished, but the most economical and efficient allocation of work between the prime and the original component manufacturer.

Question. What are the milestones for assembling and testing prototypes and for producing and delivering vehicles?

Answer. The following milestones apply to the fiscal year (FY) 1993 A0-A2 remanufacturing program, and the FY94 remanufacturing program:

| | Start | Complete |
|---|---------------------|---------------------|
| FY93 A0-A2 pilot milestones: | | |
| A0-A2 Design | May 1993 | April 1994 |
| Vehicle Disassembly and Repair Analysis | May 1993 | December 1993 |
| Define Long Lead Item | | August 1993 |
| Deliver Six Pilot A0-A2 Vehicles | January 1994 | April 1994 |
| Government Test | March 1994 | June 1994 |
| Approval of Final Contractor Technical Data Package | | June 1994 |
| FY93 A0-A2 remanufacturing milestones: | | |
| Long Lead Item Award | | December 1993 |
| Vehicle Remanufacture Contract Award | | June 1994 |
| Remanufactured Vehicle Deliveries | February 1995 | April 1995 |
| FY94 A0-A2 remanufacturing milestones: | | |
| Long Lead Item Award | | December 1994 |
| Vehicle Remanufacture Contract Award | | June 1994 |
| Remanufactured Vehicle Deliveries | May 1995 | April 1996 |

Question. What contracting/procurement strategy will be used?

Answer. The six A0-A2 pilot vehicles will be procured under a cost plus fixed fee contract with FMC. The 35 FY93 remanufactured vehicles will be procured under a firm fixed price contract with FMC and the FY94 quantity will be an option to this contract.

Question. Provide for the record the funding profile (along with associated quantities) and the delivery schedule for this program.

[CLERK'S NOTE:—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. The Bradley Fighting Vehicle (BFV) production base sustainment program includes the production of 54 new vehicles in fiscal year (FY) 1993. Last year we were told that the total BFV requirement was 7,963, the authorized quantity was 6,724, and the "on-hand, on-order" quantity was 6,670.

What are the comparable quantities today? Explain any changes.

Answer. The Army Authorization Objective is currently 9,580 vehicles, the current procurement objective (P.O.) is 6,724 vehicles and the "on-hand, on-order" quantity is 6,724. The Army does not have the authority to procure vehicles beyond the current P.O. of 6,724 vehicles. The 54 vehicles being procured with the FY93 funding are being procured to replace known losses from the Army's inventory due to live-fire testing, destructive testing, accidents and Operation Desert Storm losses. The 54 vehicles will not take the Army past its P.O.

Question. What additional new BFV production is contemplated beyond FY93 (other than specialized variations)?

Answer. The Army does not have the authority to procure the BFV beyond the current procurement objective of 6,724 vehicles. With the FY93 funding for the Bradley Base Sustainment Program, the Army plans to procure 54 new production vehicles to replace known losses from the Army's inventory and remanufacture 41 A0 models to the A2 High Survivability model. We will continue to remanufacture A0 model through FY97 when the Army will start the A2 to A3 model upgrade program.

Question. What foreign sales are currently under consideration for the Bradley Fighting Vehicle (BFV)? How likely are they to occur?

Answer. Currently, Foreign Military Sales (FMS) are being considered by Egypt, UAE, Kuwait, Switzerland, Norway, Spain, and Austria. Switzerland, Norway, Spain, and Austria are considered to have a 50-50 chance of being finalized. The Arab countries have a very low probability of being completed. The Army has decided to support the Bradley Base Sustainment Program within the Weapons and Tracked Combat Vehicles appropriations to sustain the industrial base, in lieu of FMS funds, due to the low interest expressed by these foreign governments.

Question. Which of these sales have been assumed in the BFV production base sustainment program?

Answer. Other than the Saudi Arabian sale of 400 vehicles which has an implemented Letter of Acceptance (LOA) and whose cost benefits are shared with the normal BFVS vehicle line under the current multi-year procurement 1990 to 1994 contract, future FMS are never incorporated with the government budget until a LOA has been signed by both countries.

Question. The budget also includes \$29.9 million for other BFV modifications. Explain what this program includes and its relationship to the BFV production base sustainment program.

Answer. The fiscal year 1994 Bradley series modification line has \$29.9 million budgeted for Red River Army Depot to continue the ongoing retrofit program of the A1 model with the A2 High Survivability kit, new 600 horsepower engine and improved TEC-3 transmission. Additional modifications include improved optics and periscopes, energy hardening of the sights, improved backup sight for the commander, improved ballistic door for the gunner's sight, improvements to the TOW launcher, a new Vehicle Intercommunications System, and a replacement program for the current HALON fire extinguisher system.

Question. What are the milestones for the A3 modification development program? Part of the long-term Bradley Fighting Vehicle

production base sustainment program is the eventual modification of vehicles to an A3 configuration.

Answer. The current projected A3 developmental milestones are:

Event and Milestone

Initiate Development—January 1994.

Research, Development, Test and Evaluation, Development Program—2nd Quarter (QTR) Fiscal Year (FY) 1994 to FY98.

Testing—2nd QTR FY96 to 4th QTR FY97.

Milestone III—FY 96.

Complete Development—4th QTR FY97.

First Procurement—FY97.

Initiate Production—2nd QTR FY98.

First Unit Equipped—FY99.

Question. What improvements will be included in the A3 configuration?

Answer. The A3 improvements include a series of technology insertions into the current A2 vehicle. The major thrusts of the modifications are to enhance the Bradley's command and control, lethality and survivability.

A new Core Electronics Architecture structured around the 1553 digital databus allows the integration of an Inter-Vehicular Information System (IVIS) command and control system. This technology will not only integrate the Bradley's navigation, fire control survivability capabilities, but will digitally link the vehicle to other Bradleys, Abrams tanks, fire support systems, air defense assets and helicopters across the three-dimensional battlefield. This enhancement will increase the war fighting capability by speeding the information flow, improving the decision making cycle, allowing for electronic hand-off of targets, increasing the war fighter's situational awareness and increasing the overall effectiveness of the combined arms force.

Lethality is enhanced through a new second generation Forward Looking Infrared acquisition system, laser rangefinder and improved fire control ballistics. These improvements provide the capability to detect and identify targets to the maximum effective range of the weapon systems and provide overwhelming firepower and accuracy against any potential threat. Also included is the dual tracking capability for the TOW II missile system. This enhancement allows immediate engagement of a second target as soon as the first missile reaches its target. The laser rangefinder, integrated into the 1553 databus, not only increases the accuracy of the 25mm Bushmaster gun and TOW II missile system, but also passes the target's location to their systems via the IVIS's reporting system.

Survivability enhancements include an anti-tank missile countermeasure, Commander's Independent Thermal Viewer (CITV) and Combat Identification (ID) System. The survivability package will protect the Bradley from enemy missiles, warn the crew they have been acquired by an enemy laser and from what direction, and dispense countermeasures to protect the Bradley and crew from observation and targeting by direct and indirect fire weapon systems. The CITV provides the Bradley commander the ability to acquire

targets independent of the gunner and provides the capability to hand off the target to the gunner immediately. The CITV also provides the Bradley commander and the infantry squad with increased situational awareness of the battlefield. The Combat ID system will project the Bradley from being engaged by friendly forces and alert the gunner as to whether a potential target is friend or foe.

The entire enhancement package enables the Bradley to maintain compatibility with the Abrams Main Battle Tank and provides the "First-To-Fight" forces with overmatching technology to ensure rapid victory with minimum casualties.

M109A6 PALADIN SELF PROPELLED HOWITZER

Question. Last month, a Milestone IIIB full rate production decision was made for the M109A6 Paladin self-propelled howitzer. A full rate production contract was awarded to FMC Corporation. The development and low rate production of Paladin had been done by BMV. The fighting vehicle division of BMV and FMC are merging under an agreement announced last year. What is the production strategy which FMC will follow for Paladin? That is, who does what, where, and how?

Answer. FMC has created a Paladin Production Division to be located at Letterkenny Army Depot. According to the proposal they submitted for the Paladin Competition procurement, their production strategy is to do the systems integration and assembly work at a refurbished, rent-free facility at Letterkenny. FMC will fabricate the Paladin turret at their San Jose, California facility and ship it to their Letterkenny facility for final assembly and integration with the chassis. The FMC proposal does not address as possible merger with BMV-Combat Systems Division. Since merger discussions between FMC and BMV's parent company, Harsco, are still in progress, the Army does not know at this time what changes FMC will make to their Paladin production strategy once the FMC-BMV merger is approved and completed.

Question. Under the new contract, what items of equipment will be broken out and supplied to FMC as government-furnished material?

Answer. Government furnished material to be provided to FMC include the following major items: Refurbished and upgraded howitzer chassis, cannons, ballistic shields, gun mounts, Dynamic Reference Units, radios, and intercom sets.

Question. Describe the other features of the contract.

Answer. The contract is a firm fixed price, four-year multiyear contract with options for up to 30 additional Paladins per year in fiscal years (FY) 1994-1996. It contains a pre-production engineering clause which results in a one year total system warranty.

Question. When are low rate production vehicle deliveries from BMV expected to be completed and when will FMC deliveries begin? Provide the monthly delivery schedule for the FMC contract for the fiscal year 1993 and 1994 procurements.

Answer. BMV will complete deliveries of low rate production vehicles in November 1994. FMC deliveries will begin in December

1994. Below is FMC's monthly delivery schedule for the FY93 and FY94 procurements:

FISCAL YEAR 1993 PROCUREMENT

| | | | | | | |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Month | Dec 94 | Jan 95 | Feb 95 | Mar 95 | Apr 95 | May 95 |
| Quantity | 1 | 2 | 4 | 5 | 5 | 6 |
| Month | Jun 95 | Jul 95 | Aug 95 | Sep 95 | Oct 95 | Nov 95 |
| Quantity | 6 | 6 | 8 | 8 | 6 | 10 |
| Fiscal Year 1994 Procurement | | | | | | |
| Month | Dec 95 | Jan 96 | Feb 96 | Mar 96 | Apr 96 | May 96 |
| Quantity | 10 | 11 | 12 | 13 | 15 | 15 |
| Month | Jun 96 | Jul 96 | Aug 96 | Sep 96 | Oct 96 | Nov 96 |
| Quantity | 16 | 17 | 17 | 17 | 17 | 17 |

Question. Last year, you estimated the Paladin program to cost a total of \$1.10 billion for 824 vehicles. What are your current estimates since the award of the FMC contract?

Answer. Last year, we estimated the procurement cost for 824 vehicles to be \$1.10 billion. Since that time, the Paladin program experienced cost increases (primarily for Defense Business Operating Fund surcharges and elimination of chlorofluorocarbons) that brought the estimated procurement cost for 824 vehicles to \$1.15 billion.

Question. What pre-delivery milestones is FMC required to achieve under the contract?

Answer. FMC is required to hold a pre-production review approximately six months prior to the start of production. FMC is also required to conduct a start-of-work meeting and quarterly production progress reviews. The start of work is scheduled for May 25-27, 1993. Quarterly production progress reviews will begin in the 4th Quarter, FY93.

Question. Since the budget was prepared before the contract award, what changes to the fiscal year 1993 appropriation and 1994 budget should be made for this program?

Answer. There is a \$32 million excess in the FY93 program that is offset by shortfalls in later years. The FMC contract award requires no changes to the FY94 program. These adjustments represent the difference between the government estimate and the actual FMC bid structure for production of 660 systems under full rate production. Twenty million dollars of the \$32 million FY93 excess is a source on the FY93 Omnibus reprogramming. The remaining \$12 million must be held by the contracting officer until February 1995 to cover contract contingent liabilities.

TANK RECOVERY VEHICLE

Question. One of the glaring deficiencies of the Desert Storm experience was the absence of a vehicle that could recover the Abrams tank by itself. The Army's plan to fill this deficiency is the M88A1E1. Last year we were told that five prototype vehicles would undergo technical and user testing from June, 1992 to August, 1993, with initial production funding in fiscal year (FY)

1994. Why are no tank recovery vehicle procurement funds included in the fiscal year 1994 budget?

Answer. During the FY94 budget adjustment process, the Army, due to affordability, decremented \$16.8 million of procurement funds for the Improved Recovery Vehicle (IRV) program delaying fielding from FY95 to FY96.

Question. What is the status of this program and current testing and decision milestones?

Answer. Four refurbished prototype vehicles are currently undergoing pre-production qualification testing. In testing so far, the system is meeting nearly all the performance requirements. To date, system reliability is greatly improved over that demonstrated in earlier testing, but remains an area which bears scrutiny. Limited user testing will begin in July, 1993 and end in August, 1993. The Army will make a Milestone III production decision no later than the fourth quarter of FY95.

Question. Last year's budget projected modifying 346 vehicles at a procurement cost of \$657.8 million. What is your current plan and why has it changed?

Answer. The procurement objective remains 346 vehicles. The current program cost estimate is \$885 million. The previous cost estimate was preliminary and did not include a technical data package, production tooling or program management costs and assumed a high annual production rate to support Army, United States Marine Corps and foreign military sales requirements. The current cost estimate recognizes the stretched production schedule and includes the technical data package, tooling, program management costs, and inflation.

Question. The Research and Development budget includes \$11.4 million for this program in fiscal year 1994. What is proposed to be accomplished with these funds?

Answer. We will use the \$11.4 million to procure production pilot test vehicles in support of production qualification testing and initial operational test and evaluation.

Question. How are the prototype vehicles funded this year different from the ones which are currently being tested?

Answer. There is no difference in the funding. The Army is using research, development, test and evaluation (RDT&E) funds to acquire both the prototype and pilot test vehicles, since they both support testing prior to the Milestone III decision, no later than the fourth quarter of FY95.

Question. What is the procurement and contracting strategy for this program?

Answer. The Milestone III production decision will be made no later than the fourth quarter of fiscal year 95. Once that is accomplished, we will contract with BMY Combat Systems for the first year's production of nine vehicles. For each subsequent year, we will exercise options for the remaining quantity of vehicles until we meet the Force Package 1 requirement of 346 vehicles.

Question. Provide for the record the complete research and development and procurement profile, including quantities.

Answer. Our Fiscal Year 94 Budget submission requests \$11.4 million RDT&E for the IRV program. The Fiscal Year 95/"To Completion" figures reflect projected funding requirements and will

compete for resources during the development of the Fiscal Year 95-99 Future Years Defense Plan this summer.

(Dollars in millions)

| | Prior | FY93 | FY94 | FY95 | FY96 | FY97 | FY98 | FY99 | To completion |
|------------------|-------|------|------|------|------|------|------|------|---------------|
| RDT&E..... | 30.0 | 10.2 | 11.4 | 4.7 | | | | | |
| Procurement..... | | | | 16.2 | 22.7 | 13.4 | 44.1 | 59.4 | 728.8 |
| (Quantity)..... | | | | (9) | (12) | (7) | (22) | (29) | (267) |
| Total..... | 30.0 | 10.2 | 11.4 | 20.9 | 22.7 | 13.4 | 44.1 | 59.4 | 728.8 |

ARMORED GUN SYSTEM

Question. The budget includes \$8.2 million in procurement and an additional \$7.8 in advance procurement for the Armored Gun System (AGS). AGS is a "light tank" with a 105mm gun. The Army plans to procure 300 of these vehicles, mainly to replace the aging Sheridan fleet in the light forces. What is the status of this program?

Answer. The AGS successfully completed an Army Milestone I/II Review in May 1992. An Engineering and Manufacturing Development contract was competitively awarded in June 1992 to produce six prototype vehicles and a ballistic hull and turret. The ballistic structure will be delivered in June 1993 and prototype vehicles will be delivered in 2d Quarter (Qtr) Fiscal Year (FY) 1994.

Question. The research and development (R&D) program funds six prototype vehicles. When will these prototypes be delivered and what is the testing schedule for them?

Answer. Delivery of the six prototype AGS vehicles will be accomplished in 2d Qtr FY94. Testing begins in 3d Qtr FY94 and continues for one year. The testing includes Operational Testing at Ft. Bragg, North Carolina and system Reliability, Availability, Maintainability, Performance and Vulnerability Testing at Aberdeen Proving Grounds, Maryland, Yuma Proving Grounds, Arizona, and White Sands Missile Range, New Mexico. One vehicle will be dedicated to conduct the Logistics Demonstration at the contractor's facility in San Jose, California and be used for development of training materials and technical manuals.

Question. What are the other milestones for this program?

Answer. Other key milestones include contract award in 3d Qtr FY94 for long lead items to support low rate initial production (LRIP) and an Army program review in 1st Qtr FY95 to verify that the program is ready to enter into LRIP. A full rate production decision is scheduled for December 1997.

Question. What is the procurement strategy?

Answer. The AGS is being acquired in a streamlined, three phase process. The first phase, Engineering and Manufacturing Development, is currently on contract. The second phase is low rate initial production (LRIP) which will begin after successful completion of Phase I testing. LRIP will cover three years beginning in fiscal year (FY) 1995 with a total quantity of 69 vehicles. In the first year of LRIP, two vehicles will be procured with research, development,

testing and evaluation (RDT&E) funding for live fire testing. Phase III will be full rate production beginning in FY98 and lasting three years for the remaining 233 vehicles.

Question. What are the technical, schedule, or other risks in this program?

Answer. There are no significant risks at this time. Achieving the Level III armor protection goals within system weight constraints has been a technical challenge. With the concurrence of the user community, the Army has optimized weight and survivability for Level III protection. Opportunities exist to enhance the protection offered by the Level III armor with emerging technologies. The Army will pursue improvements to the Level III protection as these technologies mature.

Question. Provide for the record a complete research and development (R&D) and procurement funding profile, including associated quantities.

Answer. The FY95-00 figures are projected requirements. These will be considered during the FY95-99 Future Years Defense Program Review conducted this summer.

| | Fiscal year— | | | | | | | | Total |
|-----------|--------------|------|-------|-------|-------|-------|-------|-------|---------|
| | Prior | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| RDE..... | 109.4 | 81.8 | 41.2 | 15.1 | 23 | 0.4 | | | 270.9 |
| PROC..... | 7.7 | 16.0 | 106.8 | 123.1 | 130.9 | 255.7 | 357.4 | 238.9 | 1,233.5 |
| QTY..... | | | (19) | (24) | (24) | (57) | (120) | (56) | (300) |

M119 105MM LIGHT TOWED HOWITZER

Question. The Army planned to procure a total of 311 M119 105mm light towed howitzers. This program was to have been completed with procurement of 88 guns in fiscal year (FY) 1994 and 50 guns in fiscal year 1995. Why has this program apparently been terminated, with no additional procurement projected beyond fiscal year 1993?

Answer. The final year of procurement for the M119 Howitzer is now FY93 for 87 howitzers resulting in a program total of 427 howitzers. The Army terminated production in FY94 and FY95 due to force structure reductions and affordability.

Question. What units will not receive the M119 as a result of this decision and what will they use instead?

Answer. They Army will now equip only Force Packages 1 and 2 with the M119 Howitzer. We will equip the 29th Light Infantry Division (Virginia National Guard) and 29th Separate Infantry Brigade (Hawaii National Guard) in Force Package 3 with the M102A1 105mm light towed howitzer (approximately 100 howitzers including training and support base) instead of the M119 Howitzer.

Question. What financial penalties, if any, have to be paid as a result of this premature termination?

Answer. There are no penalties for early termination. However, we have accelerated to FY93-FY95 normal program termination costs (closure of the Technical Data Package—\$2.1 million, final fielding costs—\$1.0 million, final payment of royalties to Royal

Ordnance—\$4.5 million, and layaway of the manufacturing capability—\$1.0 million).

FAMILY OF MEDIUM TACTICAL VEHICLES (FMTV)

Question. The budget includes \$25.8 million for procurement of FMTV trucks. Last year, the expected 1994 budget was \$382.3 million. What accounts for the change?

Answer. Fiscal Year (FY) 1994 is now essentially a "skip year" in the FMTV production program due to the production startup delay. However, remaining FY94 funding assures continuous production. The remainder of the basic contract quantity will now be funded with FY96 funding.

Question. Precisely how was the FY 1994 budget requirement calculated? Given the delays, why should any funds be appropriated?

Answer. FY93 and FY94 funding, along with customer funding will be used to fulfill the production contract's third program year. FY93 Other Procurement Army 1 (OPA 1) funding procures 1,987 vehicles, FY94 OPA 1 funding procures 246 vehicles and customer funding procures 151 vehicles. These three segments comprise the third program year basic contract quantity of 2,384 vehicles. Any further reduction in FY94 funding would not allow the Army to call up the third contract year and would thus break the contract.

Question. According to last year's hearings, the FMTV contract requires that 277 vehicles be delivered by Jan 1993 and a total of 2,474 vehicles by the end of Dec 1993. How many vehicles were actually delivered by Jan of this year and how many will be delivered by the end of Dec?

Answer. No vehicles were delivered in Jan 1993. Production began in Apr 1993. Vehicle deliveries by the end of Dec 1993 are dependent on a vehicle delivery schedule that is presently being negotiated.

Question. In what other respects is the contractor delinquent from contract requirements?

Answer. The contractor is delinquent primarily in three key areas (other than delivery of production trucks). The first area is responding to shakedown test incidents. Of the 707 test incidents reported, four areas remain open pending the completion of ongoing testing. The second area is the delivery of the technical data package. The technical data package becomes important in FY96 to compete the second multiyear contract. The third area is the completion of component first article testing. Component first article testing will be completed before the start of Initial Operational Testing & Evaluation (IOT&E).

Question. What penalties have or will be imposed on the contractor as a result of these delinquencies?

Answer. The government is in process of negotiating a contract modification with the contractor that addresses the contract delinquencies.

Question. Last year's hearings showed the following milestones for this program:

| | |
|--|---------------|
| Initial Production Test..... | 11-92 to 8-93 |
| Initial Operational Test and Evaluation..... | 1-93 to 6-93 |
| Milestone IIIB Production Decision | 10-93 |
| First Unit Equipped..... | 10-93 |

What are the current program milestones?

Answer. Current program milestones are as follows:

| | |
|--|--------------|
| Initial Production Test..... | 5-93 to 2-94 |
| Initial Operational Test and Evaluation..... | 9-93 to 3-94 |
| Milestone IIIB Production Decision | 9-94 |
| First Unit Equipped | 11-94 |

Question. What changes will be made to the FMTV contract as a result of these problems? What is the schedule for making these changes?

Answer. Contract modification will include conditions necessary to start testing and a new vehicle delivery schedule. It is the desire of the government to execute the modification as soon as possible. Discussions with the contractor are in process at the present time.

Question. What funding levels are currently projected for this program in years beyond 1994 and how do these compare with basic contract quantities and options?

Answer. Projected funding levels, vehicle quantities, and basic contract and option quantities are as follows. Funding for these projected levels will be considered during the program reviews this summer and fall.

[Dollar amounts in millions]

| | FY95 | FY96 | Second multiyear procurement | | |
|-----------------|---------|---------|------------------------------|---------|---------|
| | | | FY97 | FY98 | FY99 |
| Dollars..... | \$379.7 | \$379.9 | \$334.2 | \$329.5 | \$534.5 |
| Qty..... | 3,506 | 3,479 | 2,389 | 2,372 | 4,050 |
| Basic Qty..... | 3,461 | 3,524 | | | |
| Option Qty..... | 3,461 | 3,524 | | | |

Question. What is the participation of other services in this program?

Answer. Participation of other services now totals 167 vehicles (Navy and Air Force).

Question. What are the long-term plans for this program beyond the current contract?

Answer. Follow-on multiyear production contracts are planned for continued FMTV production.

PALLETIZED LOADING SYSTEM [PLS]

Question. The budget includes \$464.3 million for the last year of a five year multiyear contract for the procurement of the Palletized Loading System. Two weeks ago, the Committee received a report on this program from the Director, Operational Test and Evaluation. The report concluded that the PLS system "was unable to deliver increased quantities [of ammunition] required during surge operations" and "did not demonstrate adequate reliability, availability or maintainability". Why does the Army continue to procure this vehicle in light of the criticisms?

Answer. The Army does not agree with the DOT&E evaluation of Palletized Loading System (PLS) suitability. The Army's independent Operational Test and Evaluation Command (OPTEC) submitted a favorable PLS Initial Operational Test and Evaluation (IOT&E)

Report to the Director, Operational Test and Evaluation (DOT&E) in December 1992. The report stated that the PLS was effective and suitable. PLS demonstrated 1773 mean miles between operational mission failure (MMBOMF) against a criteria of 1500 MMBOMF. The PLS came within only 5% of the target goals for increased ammunition delivery. The OPTEC report states that even with a small increase in reliability, availability and maintainability (RAM), the increased quantities of ammunition delivery could be met. Since the OPTEC report was issued, additional technical testing has demonstrated the desired RAM improvements. Following the Army's submission of its IOT&E report it was revealed that DOT&E's criteria for determining operational mission failures (OMF) differed from OPTECs. DOT&E apparently did not use the scoring criteria set forth in the Failure Definition Scoring Criteria stated in the approved Test and Evaluation Master Plan (TEMP). As a result, there is disagreement on the number of OMFs reported by DOT&E and OPTEC (108 vs 39). DOT&E, however, did make the assessment in their report that 44 of the 108 failures were not RAM related but were test unit induced. The Army stands by their position that PLS successfully completed operational testing. The Army needs this system to support the Maneuver Oriented Ammunition Distribution System (MOADS). PLS will have increased mobility (Central Tire Inflation System (CTIS)); increased ammunition throughput capability (33 Ton payload) and decreased manpower and Material Handling Equipment (MHE) requirements due to the self-load/self-unloading capability of the demountable cargo bed (flatrack) over the current vehicles, the 10 Ton Heavy Expanded Mobility Tactical Truck (HEMTT) and the M915 series Line Haul Tractors. These capabilities are vital to support a smaller, more lethal and effective force. The Army has restructured its units to capitalize on the efficiencies of the PLS system.

Question. What is the Army doing to correct these shortfalls and who is paying for it?

Answer. The OPTEC report indicated some concerns with manuals, parts support and availability. In accordance with Acquisition Decision Memorandum (ADM) guidance, the required corrective actions are being re-evaluated by OPTEC during a Final Assessment Validation Test (FAVT) being conducted at Yuma Proving Ground from February-May 1993. This test will verify contractor corrective actions which are low risk technical solutions resulting from deficiencies discovered during Production Qualification Testing (PQT). Emerging results indicate that the corrective actions are effective. The Army Operational Evaluation Command (OEC) will provide a FAVT evaluation report to be reviewed at a Joint In-Process Review conducted by the Commandant, Transportation School and the Program Executive Office, Combat Support (PEO-CS) in July 1993. The results will be forwarded to the Army Acquisition Executive for a final decision on Type Classification-Standard, required for fielding. The Army will not field PLS until all known shortfalls are corrected. The contractor is required to correct all deficiencies in the design and retrofit all vehicles procured to the accepted configuration at no cost to the government.

Question. Why did it take until the last year of a five year multiyear contract to identify these shortfalls?

Answer. The final year of the five year PLS multiyear contract is FY 94, however, only 20% of the trucks being procured have been produced to date. PLS is a non-developmental item (NDI) program. The Acquisition Strategy approved by the Defense Acquisition Board in 1990 called for a compressed acquisition schedule. This necessitated the use of concurrent technical and operational testing. Technical Testing (Production Qualification Testing (PQT)) was conducted from March-December 1992 at Aberdeen and Yuma Proving Grounds. Operational Testing (OT) was conducted from June-August 1992 at Ft. Hood, Texas. The test report was not issued until December 1992. Corrective actions required as a result of OT and PQT are being verified during the Final Assessment Validation Test (FAVT) being conducted at Yuma Proving Ground from February-May 1993. Emerging results indicate that the corrective actions are effective.

Question. Congress directed that the Army procure an enhanced flatrack for this system before fiscal year 1994. What is the Army doing to carry out this direction and how is it reflected in your 1993/4 budget?

Answer. The Army intends to carry out the direction to provide for the timely acquisition of the enhanced PLS flatrack (EPF) by authorizing its procurement by 4QFY93 following government evaluation of contractor prototypes being delivered by June 1993. The PLS contractor, Oshkosh Truck Corporation, and its flatrack subcontractor, Steeltech Manufacturing, Milwaukee, Wisconsin, have been conducting prototype testing of the EPF to determine conformance to Conventions for Safe Containers (CSC). The user community recently conducted a trade-off analysis to determine if there is any significant benefit derived from designing the EPF to exceed the PLS payload in order to maximize use of the EPF as a container. A user decision was received on 12 May 1993. The design meeting the PLS payload was selected. The prototype can now be modified, retested and, if acceptable, production can begin in November 1993. Approximately 50% of the fiscal year (FY) 1993 funded flatracks will be in the EPF configuration. All PLS flatracks procured with FY 1994 funding will be enhanced PLS flatracks.

HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE

Question. The budget includes \$242.7 million to procure 5,433 High Mobility Multipurpose Wheeled Vehicles (HMMWV). Fiscal year 1993 was the last year of a five year multiyear procurement. A portion of the 1994 buy will be executed as options to the current contract and a portion will be used to execute a new contract. What are the quantities and dollars associated with each.

Answer. The option portion of the budget is 5,409 vehicles for \$228 million. The new contract portion is 24 vehicles for \$14.7 million. The \$14.7 million figure represents \$1.1 million in hardware costs, \$5.6 million for documentation, and \$8.0 million for Production Qualification Testing.

Question. What is the proposed procurement strategy for the new contract?

Answer. Due to the low production quantities, the Army plans to go sole source to the current contractor—AM General.

Question. Provide for the record the funding profile for the contract, to include quantities.

Answer. FY 1994 \$14.7M/24, FY 1995 \$91.0M/1,507, FY 1996 \$92.2M/1,629, FY 1997 \$40.2M/690, FY 1998 \$95.4M/1,743, FY 1999 \$63.4M/1,225. FY 1994 and 1995 represent the first program year.

Question. What are the milestones for the new contract?

Answer. Senior Data Review Board, 24 June 1993; Sole Source Justification & Approval, 30 June 1993; Issue Request for Proposals, 18 Sep 1993; Receipt of Proposals, 18 Oct 1993; Contract Award, 21 Feb 1994.

Question. At what production rates is the HMMWV currently being produced and what rates are assumed under the new contract? What is the expected cost penalty associated with the different rate?

Answer. The current production rate is 8,400 per year. The rate for the new contract is 1,700 per year. We expect a 15 per cent cost penalty.

Question. What requirements of other services will be included under the new contract?

Answer. The Army has no firm requirements at this time. Potential buyers are the Marine Corps, the Air Force, the State Department, Foreign Military Sales and direct foreign sales.

Question. What will be the Army's HMMWV inventory at the end of deliveries from the current contract and what is the Army's inventory and acquisition objective for HMMWV?

Answer. At the end of the current contract the Army will have 88,877 on hand against an acquisition objective of 103,577.

Question. What are the known "interchange" requirements for HMMWV's for other programs in each of the next five years? Identify the year, the quantity and the program.

Answer. The interchange requirements for the next five years are as follows:

M998 ARMY/USMC/FMS

| | FY93 | FY94 | FY95 | FY96 | FY97 | FY98 | FY99 | TOTAL
TO FY99 | OUT YEARS
TOTAL |
|---|------|------|------|------|------|------|------|------------------|--------------------|
| PROJECT MANAGER, MULTI-SYSTEMS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AN/TMO-41 | 0 | 4 | 76 | 0 | 0 | 0 | 0 | 80 | 0 |
| PROGRAM MANAGER, SIGNAL WARFARE | 1 | 67 | 119 | 100 | 25 | 0 | 0 | 301 | 0 |
| GROUND BASED COMMON SENSOR-HVY (GBCS-H) | 0 | 3 | 0 | 0 | 0 | 0 | 9 | 12 | 0 |
| TRACKWOLF | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 6 | 0 |
| PM, AIR DEFENSE COMMAND & CONTROL (ADCCS) | 2 | 40 | 109 | 76 | 27 | 0 | 0 | 254 | 0 |
| TSQ-182 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 34 |
| TSQ-184 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 33 |
| TSQ-183 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 21 |
| SOC(S) FAADC21 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 85 |
| PM ALL SOURCE ANALYSIS SYSTEM (ASAS) | | | | | | | | 0 | 0 |
| TYQ-42V13 | 18 | 0 | 0 | 0 | 0 | 6 | 15 | 75 | 0 |
| CECOM TSC-122 SPECIAL OPERATIONS FORCES (SOF) | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 |
| PM ADDS | | | | | | | | | |
| VSO-2V4 | 2 | 8 | 8 | 8 | 2 | 0 | 0 | 22 | 0 |
| TSQ-158V2 | 0 | 1 | 8 | 2 | 0 | 0 | 0 | 11 | 0 |
| PM, AIR TRAFFIC CONTROL | | | | | | | | | |
| TTCS | 0 | 23 | 18 | 25 | 0 | 0 | 0 | 66 | 0 |
| TOTAL M998 INTERCHANGE | 42 | 190 | 355 | 207 | 54 | 6 | 24 | 578 | 153 |

M1097 HHV ARMY/USMC/FMS

| | FY93 | FY94 | FY95 | FY96 | FY97 | FY98 | FY99 | TOTAL
TO FY99 | CUT YEARS
TOTAL |
|---|------|------|------|------|------|------|------|------------------|--------------------|
| COMBAT SERVICE SUPPORT CONTROL SYSTEM (CSSCS) | 4 | 3 | 13 | 11 | 7 | 24 | 22 | 84 | 51 |
| PM, ALL SOURCE ANALYSIS SYSTEM (ASAS) | | | | | | | | | |
| TYQ 42V12 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 9 | 0 |
| TYQ-42V13 | 12 | 20 | 4 | 0 | 0 | 4 | 10 | 50 | 0 |
| IMETS | 8 | 10 | 10 | 10 | 10 | 8 | 0 | 52 | 0 |
| CECOM TSC-122 SPECIAL OPERATIONS FORCES (SOF) | 12 | 8 | 0 | 0 | 0 | 8 | 0 | 12 | 0 |
| CECOM MSG 85(B) SPECIAL OPERATIONS FORCES (SOF) | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 8 |
| CECOM OMPG SPECIAL OPERATIONS FORCES | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 27 | 0 |
| CECOM PM BGR II | | | | | | | | | |
| TTC-41V1 | 0 | 18 | 8 | 0 | 0 | 0 | 8 | 16 | 8 |
| TTC-41V2 | 1 | 17 | 0 | 0 | 8 | 0 | 0 | 16 | 0 |
| TTC-41V3 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| TTC-49 | 24 | 8 | 0 | 12 | 0 | 0 | 0 | 36 | 0 |
| AMCCOM M119 HOWITZER PRIME MOVER | 112 | 156 | 208 | 202 | 116 | 0 | 0 | 894 | 8 |
| AMCCOM M157 SMOKE MAKING SYSTEM | 0 | 0 | 72 | 312 | 72 | 0 | 0 | 456 | 0 |
| AMCCOM XM56 DECONTAMINATION SYSTEM | 13 | 0 | 0 | 143 | 88 | 318 | 0 | 562 | 0 |
| AMCCOM CONTACT MAINTENANCE TRUCK | 3 | 38 | 58 | 180 | 8 | 8 | 8 | 279 | 0 |
| CHEM BIO PROTECTIVE SHELTER | 0 | 0 | 0 | 15 | 72 | 84 | 84 | 255 | 0 |
| XM-31 INT DET SYS (BIO) | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 4 | 123 |
| MICOM PM AIR DEFENSE COMMAND & CONTROL (ADCCS) | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 0 |
| TSQ-182 | 8 | 8 | 10 | 0 | 0 | 0 | 0 | 21 | 34 |
| TSQ-183 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 14 | 21 |
| TSQ-184 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 33 |
| SENSOR COMMAND & CONTROL SYSTEM (M)(SCCS(M)) | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 85 |
| MICOM HAWK ANTI AIRCRAFT MISSILE SYSTEM | 9 | 4 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| AVENGER SHELTER VEHICLE | 23 | 16 | 0 | 8 | 0 | 0 | 0 | 36 | 0 |
| AVENGER FIRING UNIT | 102 | 144 | 72 | 0 | 8 | 0 | 0 | 318 | 357 |
| AVENGER RETROFIT | 206 | 207 | 0 | 8 | 0 | 0 | 0 | 413 | 0 |
| PM UNMANNED AERIAL VEHICLE (UAV) CLOSE RANGE | 0 | 0 | 18 | 0 | 8 | 0 | 0 | 26 | 153 |
| PM UNMANNED AERIAL VEHICLE (UAV) SHORT RANGE | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 16 | 192 |
| BLACK PROJECT | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 16 | 0 |
| ARMY SPACE PROJECT OFFICE (ASPO) | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 |
| HIGH MOBILITY TRAILER (HMT) TESTING | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| HEAVY HMMWV VEHICLE (HHV) TESTING | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 3 |
| OVERWEIGHT SHELTER SYSTEMS | 198 | 584 | 0 | 0 | 0 | 0 | 0 | 782 | 0 |
| MICOM FIBER OPTICS LIGHT (FAADS NLOS) | 0 | 0 | 15 | 15 | 34 | 36 | 0 | 90 | 0 |
| CECOM S-750 AN/TSQ-152 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 8 |
| CECOM AN/TRD-27 | 0 | 8 | 4 | 0 | 0 | 0 | 0 | 12 | 8 |
| CECOM AN/TSY-1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| CECOM AN/TRR-36 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 14 | 0 |
| CECOM AN/TSQ-189(V2) | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 16 | 5 |
| CECOM AN/TSQ-XXX TARGET ACQUISITION SUBSYSTEM | 0 | 0 | 44 | 18 | 18 | 8 | 18 | 96 | 0 |
| MLRS | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| PROGRAM EXECUTIVE OFFICER, COMMO SYSTEMS: | | | | | | | | | |
| PM, MULTISERVICE COMMO SYSTEMS | | | | | | | | | |
| AN/TRC 170V3 | 18 | 48 | 192 | 28 | 0 | 0 | 0 | 284 | 0 |
| AN/TRC 173A | 1 | 57 | 118 | 100 | 25 | 0 | 0 | 301 | 0 |
| AN/TRC 174A | 1 | 49 | 100 | 87 | 27 | 0 | 0 | 264 | 0 |
| AN/TRC 175A | 1 | 13 | 33 | 25 | 8 | 0 | 0 | 80 | 0 |
| AN/TRC 138B | 2 | 40 | 108 | 78 | 27 | 0 | 0 | 254 | 0 |
| INTEGRATED SYSTEMS CONTROL (ISYSOM) | 0 | 8 | 0 | 36 | 36 | 36 | 14 | 136 | 8 |
| PROJECT MANAGER, MOBILE SUBSCRIBER EQUIPMENT | 188 | 0 | 8 | 0 | 0 | 0 | 0 | 196 | 0 |
| PM, POSITION LOCATING RADAR SYSTEM. | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 0 |
| TSQ-158A | 4 | 0 | 0 | 4 | 9 | 8 | 10 | 33 | 0 |
| TSQ 189V1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| TSQ-189V2 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 16 | 0 |
| PROJECT MANAGER, SATELLITE COMMUNICATIONS | | | | | | | | | |
| TSC-83B | 242 | 0 | 0 | 0 | 0 | 0 | 0 | 242 | 0 |
| PROGRAM EXECUTIVE OFFICER, INTEL & ELECTRO WARFARE: | | | | | | | | | |
| PROJECT MANAGER, RADAR: | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 16 | 0 |
| TPO-36V7 (PM FIREFINDER) | 80 | 8 | 0 | 0 | 0 | 0 | 0 | 88 | 0 |
| TPO-37 (COBRA) (PM FIREFINDER) | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 12 | 4 |
| PROJECT MANAGER, SIGNAL WARFARE: | | | | | | | | | |
| TRACKWOLF | 0 | 4 | 20 | 0 | 0 | 0 | 0 | 24 | 0 |
| TRQ-32 (COMMO INTERCEPT SYSTEM) TEAMMATE | 58 | 100 | 0 | 0 | 0 | 0 | 0 | 158 | 0 |
| GROUND BASED COMMON SENSOR-LIGHT (GBCS-L) | 10 | 34 | 0 | 18 | 0 | 0 | 0 | 62 | 0 |
| TROJAN (COMMO & REMOTE RELAY SYSTEM) | 21 | 17 | 24 | 18 | 0 | 0 | 0 | 78 | 0 |
| JOINT SURV TARGET ATTACK RADAR SYS (JSTARS) | 8 | 8 | 18 | 18 | 18 | 18 | 0 | 80 | 8 |
| PM COMBAT TERRAIN INFO SYS DIGITAL TOPO SPT SYS | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| PEO COMMAND & CONTROL SYSTEMS | | | | | | | | | |
| PROJECT MANAGER, MANEUVER CONTROL SYSTEMS: | | | | | | | | | |
| DIGITAL GROUP MULTIPLEXER (DGM) | 450 | 450 | 8 | 0 | 0 | 0 | 0 | 900 | 8 |
| TYQ-45 MANEUVER CONTROL SYSTEM | 0 | 0 | 8 | 156 | 27 | 25 | 14 | 225 | 150 |
| ARMY FIELD ARTILLERY TACTICAL DATA SYSTEMS: | | | | | | | | | |
| AN/GV-1 V1-3 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 16 | 0 |
| FIRE SUPPORT CONTROL TERMINAL (F3CT) | 4 | 2 | 133 | 48 | 48 | 38 | 41 | 318 | 52 |
| TOTAL M1097 INTERCHANGE | 1870 | 2087 | 1284 | 1883 | 835 | 987 | 234 | 8380 | 1231 |

Question. The Commercial Utility Cargo Vehicle was procured in the 1980's as a commercial substitute for the Jeep for uses where expensive "militarized" capability was not required. How many CUCV's did the Army buy?

Answer. The Army purchased 59,777 CUCVs.

Question. How many CUCV's are currently in the inventory?

Answer. The Army has 55,632 on hand.

Question. What is the condition of the CUCV's?

Answer. The Army's CUCV fleet is generally in good condition. The average age of the CUCV fleet is now 8.5 years as compared to the estimated useful life of 11 years.

Question. What is the Army's plan for replacing the CUCV?

Answer. At this time the Army has no plan to purchase more CUCVs. Operationally, the Army plans to procure fleet units below the Corps, Corps units operating forward of the Corps, and the Contingency Corps units with HMMWVs.

Question. How many HMMWV's procured under the new contract will replace CUCV's?

Answer. About 1,760 HMMWVs procured under the new contract will replace CUCVs under the plan to procure fleet certain units.

2.5 TON EXTENDED SERVICE PROGRAM (ESP)

Question. The budget includes \$17.6 million for the 2.5 ton truck Service Life Extension Program (SLEP). What is the status of this program and what are the current program milestones?

Answer. The ESP prototype testing program has been completed and test results are now being evaluated. Production proposals were received from AM General and Cummins in Apr 1993. A "best value" source selection is currently ongoing with production contract award scheduled for Aug 1993.

Question. Last year, Congress appropriated \$50 million over the budget to support National Guard requirements for this program. Is the Army going to use this funding for the purpose intended? If not, why not?

Answer. Yes, the \$50 million of National Guard funding will be used for the ESP production contract.

Question. The budget documentation states that the Light Medium Tactical Vehicle (LMTV) program will not meet the Army's inventory requirements for the 2.5 ton trucks and that about 13,000 vehicles have been identified for SLEP. What funding requirements for this program are currently projected in the years beyond 1994 and how many trucks will be remanufactured?

Answer. The planned profile for the ESP is as follows:

| | FY95 | FY96 | FY97 | FY98 | FY99 | FY00 | Total |
|--------------------------|------|------|------|------|------|------|-------|
| Millions of dollars..... | 23.5 | 27.1 | 27.6 | 27.3 | 35.8 | 20.0 | 161.3 |
| Qty..... | 401 | 465 | 474 | 368 | 488 | 310 | 2,506 |

Question. Are similar programs for other tactical wheeled vehicles currently being considered? If so, please describe them and give the current status.

Answer. The M911 Heavy Equipment Transporter (HET) is currently being considered for an ESP. This effort has not yet been initiated. A study effort is currently ongoing to determine the feasibility of a HET ESP effort.

STANDARD INTEGRATED COMMAND POST SYSTEM (SICPS)

Question. Almost \$35,000,000 is requested for the Standard integrated Command Post System (SICPS). This program will house the Army Tactical Command and Central Access (ATCCS) program. The outyear budget projections for the Standard Integrated Command Post System (SICPS) show a one time spike-up to \$77 million for the fiscal year (FY) 1995 and then a somewhat large decline from that level in the outyears. What accounts for these wide fluctuations in estimates?

Answer. The SICPS procures three separate command posts mounted on three different vehicles—the High Mobility Multi-purpose Wheeled Vehicle (HMMWV), a tracked vehicle, and the five ton truck. The HMMWV command posts are planned for economic production rates in the FY94 budget. Delays in mission systems and test risks on the track and five-ton command posts have deferred these systems to FY95 and beyond. Production at economic rates to reduce cost is planned for these systems in FY95. As out-year budgets are developed, continued economic production is planned.

Question. Provide for the record the rate at which you project the Army Tactical Command and Control system (ATCCS) will be fielded. Provide that information by fiscal year (FY) in the outyears.

Answer. ATCCS described five separate automated battlefield functional area command and control systems. These systems are Maneuver Control System (MCS); Advanced Field Artillery Tactical Data System (AFATDS); All Source Analysis System (ASAS); Forward Area Air Defense Command and Control System (FAADC2); and Combat Service Support Control System (CSSCS). These systems are projected to be fielded by:

| | Contingency
Corps | FP1 | FP2 | FP3 |
|--------------------|----------------------|------|------|------|
| MCS | FY97 | FY99 | FY02 | N/A |
| AFATDS | FY95 | FY97 | FY98 | FY02 |
| ASAS (BLK I) | FY93 | FY94 | FY02 | N/A |
| (BLK II) | FY93 | FY04 | FY07 | N/A |
| FAADC2 | FY97 | FY98 | FY99 | N/A |
| CSSCS | FY95 | FY97 | FY99 | FY03 |

Force Package (FP) 1 includes rapid deployment units and most forward deployed units. FP2 includes remaining forward deployed units and initial reinforcing units. FP3 includes follow-on reinforcing units.

CHEMICAL PROTECTIVE MASKS

Question. The budget includes \$43.8 million for chemical protective masks. What are the improvements provided by this mask relative to the mask it will replace?

Answer. The M40/M42 masks provide significant improvement over the family of masks currently deployed. The M40/M42 masks provide improved fit and up to a forty percent higher level of protection than 30 year old M17, M9, and M25 masks being replaced. The M40 will replace the M17 field soldier mask and the M9 Special Purpose/Surety operations mask. The M42 will replace the M25 armor crewman's mask. The M40/M42 design accommodates a greater portion of the current soldier population, reducing or eliminating the need for specially fitted masks. Significant improvements in vision, comfort, communication, and compatibility with other Army equipment are salient features of the M40/M42 design. Additionally, the M42 mask provides a drinking capability currently not available with M25 mask that is being replaced. The new mask also allows the use of an externally mounted, NATO interchangeable canister, which reduces the time required to change filtration systems and allows the use of other countries' canisters, improving readiness.

Question. What criteria are you applying in terms of setting priorities as to which units receive the new masks first.

Answer. The mask is being fielded per the Department of the Army's Master Planning list (DAMPL). This document is prepared by the Army's Deputy Chief of Staff for Operations. The fielding is following the sequence identified in the DAMPL, i.e., we are fielding the first to fight units initially, then the remainder of the Army.

Question. Provide for the record per unit costs of the M40 and M42 mask for the current year and projected for the outyears.

Answer. Production of both M40 and M42 masks is ongoing at Mine Safety Appliances (MSA) and ILC Dover, Inc., (ILC), the mobilization base producers. The FY93/94 program will be awarded on a 60 percent/40 percent split to the mobilization base procedures. Actual/projected unit costs are as follows:

FY92 (Actual)—M40, M42; MSA—\$132, \$210; ILC—\$150, \$239.
 FY93 (Projected)—60 percent, \$149, \$275; 40 percent, \$167, \$305.
 FY94 (Projected)—60 percent, \$152, \$280; 40 percent, \$170, \$311.

The cost increase between the FY92 and FY93 contracts is based on the incorporation of product improvements into the masks and inflation.

Question. When will the inventory objective for these masks be attained?

Answer. Based on the most current force structure information available, the Army will reach its procurement objective for the M40 mask in FY96 and the M42 mask in FY95 and will complete fielding in 1998. Our objective is to replace our entire inventory of M17 series and M25 series masks with the M40 and M42 masks, respectively.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, APRIL 21, 1993.

PROCUREMENT OF AMMUNITION, ARMY

WITNESS

BRIGADIER GENERAL WILLIAM R. HOLMES, USA, DEPUTY FOR AMMUNITION, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

INTRODUCTION

Mr. Dicks. The Committee will come to order.

This morning the Committee considers the \$734,427,000 budget for Procurement of Ammunition, Army. This budget is the lowest funding level for this appropriation since before the Vietnam War. It is a significant reduction from the \$2 billion and higher levels of the 1980s.

The principal witness is Brigadier General William R. Holmes, Deputy for Ammunition, Department of the Army.

General Holmes, we welcome you before the Committee for your first appearance in support of the Army ammunition program. Since this is your first appearance, we will insert your biography in the record.

Your prepared statement will also be made part of the record. Please summarize it and then we will proceed to questions.

SUMMARY STATEMENT OF GENERAL HOLMES

General HOLMES. Mr. Chairman and distinguished members of the Committee, it is a distinct pleasure to appear before you today to testify on the Army's fiscal year 1994 ammunition procurement budget. At the outset, I would like to thank you for the strong support you and the members of the committee have given to the Army's Ammunition Procurement program in the past.

The budget I will discuss with you today is crafted to ensure that the best possible ammunition is available to keep our soldiers trained and ready. This budget recognizes prudent risks coupled with affordability to support the demands of today's changing global environment. We have attempted to make the best possible use of our dollars in terms of readiness, modernization through technology insertion and combat capability.

Our fiscal year 1994 budget request for procurement of Army ammunition is \$734.4 million. The request includes \$527.2 million for procurement of ammunition end items and \$207.2 million for the ammunition production base.

Training readiness continues to be a top priority for today's Army. Approximately 53 percent of our ammunition end item procurement is requested to support annual training. In addition, the

drawdown of war reserve stocks in excess of \$500 million will be required to meet our training needs.

As the Army reshapes its force structure, we must also reexamine our ammunition production base. In 1990, the Army developed a plan to reduce the number of active government-owned, contractor-operated ammunition plants from 15 to 8. We are proceeding with that plan today. At the same time, we are continuing to review both our government and commercial production capabilities against the projected needs of our smaller force. In order to retain critical capabilities in this era of declining resources, further consolidations may be required.

In fiscal year 1993, the Congress appropriated \$200 million for the armament retooling and manufacturing support—ARMS, initiative. The purpose of the ARMS initiative is to encourage commercial utilization of idle capacity in our government-owned, contractor-operated ammunition plants. Our fiscal year 1994 budget request does not include any additional funds for the ARMS initiative since funds appropriated in fiscal year 1993 are sufficient for both fiscal year 1993 and fiscal year 1994.

In conclusion, while our nation is in the midst of great change, our armed forces must remain trained and ready to protect our national interest. This budget is designed to achieve that purposes.

I would like to thank you and the members of your committee for your time and support. I look forward to working with you in the challenging days ahead. I will be happy to answer your questions.

[The biographical sketch and statement of General Holmes follow:]

BIOGRAPHICAL SKETCH OF:

BRIGADIER GENERAL WILLIAM R. HOLMES

Brigadier General William R. Holmes was born in Sandersville, Georgia on 1 March 1941. He graduated from Georgia Tech in 1963 and was commissioned a Second Lieutenant of Ordnance through the Reserve Officer Training Corps. He received a Master of Science Degree from American University, Washington, D.C. in 1972. He is also a graduate of the Ordnance Officer Basic and Advanced Courses, the Command and General Staff College, the Defense Systems Management College and the Industrial College of the Armed Forces.

In June 1990, BG Holmes assumed the position of the Deputy Chief of Staff for Ammunition, Headquarters, U.S. Army Materiel Command, Alexandria, Virginia. In this capacity he also serves as the Deputy for Ammunition for the Assistant Secretary of the Army (Research, Development and Acquisition). His prior assignments were: Commanding General, U.S. Army Armament Research, Development and Engineering Center, Picatinny Arsenal, New Jersey; Project Manager, Ammunition Logistics, Picatinny Arsenal, New Jersey; Commander, Seneca Army Depot, Romulus, New York; Executive Officer to the Deputy Commanding General for Research, Development and Acquisition, Headquarters, U.S. Army Materiel Command; Commander, Hawthorne Army Ammunition Plant, Nevada; Materiel Officer, U.S. Army Ammunition Depot, Akizuki, Japan; Pentagon Staff Officer for the Assistant Secretary of Defense for Program Analysis and Evaluation; Operations and Training Officer and Company Commander, 184th Ordnance Battalion, Vietnam and Company Commander, 96th Ordnance Company, West Germany.

His awards and decorations include: the Distinguish Service Medal, the Legion of Merit, Bronze Star with "V-device" and Oak Leaf Clusters, the Defense Meritorious Service Medal, and the Meritorious Service Medal.

He is married to Camilla Vance.

STATEMENT OF
BRIGADIER GENERAL WILLIAM R. HOLMES
DEPUTY FOR AMMUNITION
AMMUNITION PROCUREMENT
FY94

MR. CHAIRMAN AND DISTINGUISHED MEMBERS OF THE COMMITTEE; IT IS A DISTINCT PLEASURE TO APPEAR BEFORE YOU TODAY TO TESTIFY ON THE ARMY'S FISCAL YEAR 1994 AMMUNITION PROCUREMENT BUDGET. AT THE OUTSET, I WOULD LIKE TO THANK YOU FOR THE STRONG SUPPORT YOU AND THE MEMBERS OF THIS COMMITTEE HAVE GIVEN TO THE ARMY'S AMMUNITION PROCUREMENT PROGRAM IN THE PAST.

DURING LAST YEAR'S TESTIMONY, WE MENTIONED THAT THE ARMY WAS IN THE MIDST OF CHANGE PROMPTED PRIMARILY BY THE DEMISE OF THE SOVIET UNION. TODAY, THAT CHANGE IS CONTINUING RAPIDLY AS REFLECTED IN THE CURRENT DEFENSE BUDGET.

OUR ARMY TODAY IS THE BEST IN THE WORLD. A PRINCIPAL REASON IS THAT OVER THE YEARS OUR ARMY HAS DISPLAYED A CONSISTENT WILL TO PREPARE TO WIN. AT THE SAME TIME THE ARMY IS A RAPIDLY CHANGING INSTITUTION. THAT TRANSFORMATION, THOUGH NOT YET COMPLETE, IS BASED ON A PLAN THAT GOES BACK TO THE LATE 1980S. WE ARE EXECUTING THAT PLAN WHICH IS CHANGING THE SIZE AND SHAPE OF OUR ARMY WITHOUT CHANGING ITS ESSENCE.

TODAY'S ARMY, ALTHOUGH SMALLER, MUST BE TRAINED AND READY - FOR THE NEXT CRISIS, WHATEVER, WHENEVER AND WHEREVER IT MAY OCCUR. THE BUDGET I WILL DISCUSS WITH YOU TODAY IS CRAFTED TO INSURE THAT THE BEST POSSIBLE AMMUNITION IS AVAILABLE TO KEEP OUR SOLDIERS TRAINED AND READY. THIS BUDGET RECOGNIZES PRUDENT RISKS COUPLED WITH AFFORDABILITY TO SUPPORT THE DEMANDS OF TODAY'S CHANGING GLOBAL ENVIRONMENT. WE HAVE ATTEMPTED TO MAXIMIZE OUR DOLLARS IN TERMS OF READINESS, MODERNIZATION THROUGH TECHNOLOGY INSERTION AND COMBAT CAPABILITY.

OUR FY 1994 BUDGET REQUEST FOR PROCUREMENT OF ARMY AMMUNITION IS \$734.4 MILLION. THE REQUEST INCLUDES \$527.2 MILLION FOR PROCUREMENT OF AMMUNITION END ITEMS AND \$207.2 MILLION FOR THE AMMUNITION PRODUCTION BASE. OUR BUDGET REQUEST SUPPORTS TRAINING AND LIMITED MODERNIZATION OF SELECTED WAR RESERVE STOCKS. MODERN MUNITIONS BEING PROCURED ARE THE 155MM SENSE AND DESTROY ARMOR (SADARM) ARTILLERY PROJECTILE AND 120MM TANK CARTRIDGES FOR THE M1A1 ABRAMS TANK.

TRAINING READINESS CONTINUES TO BE A HIGH PRIORITY FOR TODAY'S ARMY. APPROXIMATELY 53 PERCENT OF OUR AMMUNITION END ITEM PROCUREMENT IS REQUESTED TO SUPPORT ANNUAL TRAINING. IN ADDITION, THE DRAWDOWN OF WAR RESERVE STOCKS IN EXCESS OF \$500 MILLION WILL BE REQUIRED TO MEET OUR TRAINING NEEDS.

A BREAKOUT OF OUR FY1993 AMMUNITION END-ITEM REQUEST IS SHOWN
BELOW:

(DOLLARS IN MILLIONS)

| | |
|--------------|---------|
| TRAINING | 280.6 |
| WAR RESERVE | 226.3 |
| NON-HARDWARE | 20.3 |
| TOTAL | \$527.2 |

CATEGORIES OF END ITEMS IN OUR REQUEST ARE AS FOLLOWS:

(DOLLARS IN MILLIONS)

| | |
|----------------------|---------|
| TANK | \$220.5 |
| SMALL/MEDIUM CALIBER | 109.1 |
| ARTILLERY | 77.7 |
| ROCKETS | 54.6 |
| OTHER | 34.0 |
| MISCELLANEOUS | 31.3 |
| TOTAL | \$527.2 |

NOW I WOULD LIKE TO ADDRESS EACH CATEGORY SEPARATELY.

TANK:

THE REQUEST INCLUDES \$83.6 MILLION FOR 120MM TANK TRAINING CARTRIDGES TO SUPPORT GUNNERY TRAINING ON THE M1A1 ABRAMS TANK. THE REMAINDER OF THE REQUEST IS FOR MODERNIZED TANK AMMUNITION DEVELOPED UNDER THE ARMAMENT ENHANCEMENT INITIATIVE.

SMALL/MEDIUM CALIBER:

THE REQUEST INCLUDES \$21.8 MILLION FOR 5.56MM CARTRIDGES TO SUPPORT TRAINING WITH THE M16 SERIES RIFLE AND THE M249 SQUAD AUTOMATIC WEAPON, AND \$52.9 MILLION FOR 7.62MM AND .50 CALIBER CARTRIDGES TO SUPPORT TRAINING WITH THE M60 AND M2 MACHINE GUNS. THE REQUEST ALSO INCLUDES \$30.5 MILLION FOR 25MM CARTRIDGES TO SUPPORT TRAINING ON THE M2/M3 BRADLEY FIGHTING VEHICLE.

ARTILLERY:

THE ONLY ARTILLERY ROUND BEING PROCURED IN FY94 IS THE NEW 155MM SENSE AND DESTROY ARMOR (SADARM) PROJECTILE. THIS IS THE FIRST YEAR OF PROCUREMENT FOR THE SADARM.

ROCKETS:

THE BUDGET REQUEST INCLUDES FUNDING FOR HYDRA 70 PRACTICE ROCKETS TO SUPPORT TRAINING ON APACHE, COBRA AND KIOWA WARRIOR HELICOPTERS.

OTHER:

REQUESTED FUNDING IN THIS CATEGORY INCLUDES \$26.4 MILLION FOR GRENADES, SIGNALS, SIMULATORS AND DEMOLITION MUNITIONS TO SUPPORT TRAINING, \$2.5 MILLION FOR VOLCANO PRACTICE MINES AND \$5.1 MILLION FOR 60MM AND 120MM MORTAR AMMUNITION.

MISCELLANEOUS:

THE REQUEST INCLUDES \$19.6 MILLION FOR AMMUNITION COMPONENTS, FIRST DESTINATION TRANSPORTATION AND UNIQUE EQUIPMENT TO SUPPORT DEPOT MAINTENANCE, INSPECTION AND TESTING OPERATIONS. IN ADDITION, \$10.6 MILLION IS PROVIDED FOR CARTRIDGE AND PROPELLANT ACTUATED DEVICES FOR EMERGENCY PILOT EGRESS SYSTEMS AND EXPLOSIVE ORDNANCE DISPOSAL ITEMS.

AMMUNITION PRODUCTION BASE:

AS THE ARMY RESHAPES ITS FORCE STRUCTURE, WE MUST ALSO RE-EXAMINE OUR AMMUNITION PRODUCTION BASE. IN 1990 THE ARMY DEVELOPED A PLAN TO REDUCE THE NUMBER OF ACTIVE GOVERNMENT OWNED, CONTRACTOR OPERATED AMMUNITION PLANTS BY SEVEN. WE ARE PROCEEDING WITH THAT PLAN TODAY.

AT THE SAME TIME, WE ARE REVIEWING BOTH OUR GOVERNMENT AND COMMERCIAL PRODUCTION CAPABILITIES AGAINST THE PROJECTED NEEDS OF OUR SMALLER FORCE. OUR PRODUCTION BASE MUST BE CAPABLE OF MEETING

OUR PEACETIME TRAINING REQUIREMENTS, REPLENISHING OUR PROJECTED COMBAT NEEDS, AND INTEGRATING EMERGING TECHNOLOGY. IN ORDER TO RETAIN CRITICAL CAPABILITIES IN THIS ERA OF DECLINING RESOURCES, FURTHER CONSOLIDATIONS MAY BE REQUIRED. WE EXPECT OUR STUDY TO BE COMPLETED THIS SUMMER.

IN FY1993 THE CONGRESS APPROPRIATED \$200 MILLION FOR THE ARMAMENT RETOOLING AND MANUFACTURING SUPPORT (ARMS) INITIATIVE. THE PURPOSE OF THE ARMS INITIATIVE IS TO ENCOURAGE COMMERCIAL UTILIZATION OF IDLE CAPACITY IN OUR GOVERNMENT OWNED, CONTRACTOR OPERATED ARMY AMMUNITION INDUSTRIAL FACILITIES BY PROVIDING INCENTIVES. OUR FY1994 BUDGET REQUEST DOES NOT INCLUDE ANY ADDITIONAL FUNDS FOR THE ARMS INITIATIVE SINCE THE PROGRAM IS STILL IN ITS DEVELOPMENTAL PHASE IN FY1993.

OVER THE PAST SEVERAL MONTHS WE HAVE BEEN ACTIVELY INSTITUTING THE ARMS INITIATIVE. WE SUBMITTED OUR FIRST QUARTERLY REPORT TO THE CONGRESS IN FEBRUARY 1993 OUTLINING OUR PROGRESS TO DATE. WE WILL SUBMIT A COMPREHENSIVE ARMS INITIATIVE IMPLEMENTATION PLAN TO THE CONGRESS IN AUGUST OF THIS YEAR.

I WOULD NOW LIKE TO ADDRESS THE DETAILS OF OUR PRODUCTION BASE SUPPORT REQUEST. A BREAKOUT OF OUR REQUEST IS AS FOLLOWS:

(DOLLARS IN MILLIONS)

| | |
|-------------------------------|---------|
| MAINTENANCE OF INACTIVE | |
| INDUSTRIAL FACILITIES | \$59.8 |
| LAYAWAY OF INDUSTRIAL | |
| FACILITIES | 51.5 |
| PROVISION OF INDUSTRIAL | |
| FACILITIES | 40.2 |
| PROVING GROUND MODERNIZATION/ | |
| COMPONENTS FOR PROVE-OUT | 2.4 |
| CONVENTIONAL AMMUNITION | |
| DEMILITARIZATION | 53.3 |
| TOTAL | \$207.2 |

MAINTENANCE OF INACTIVE INDUSTRIAL FACILITIES:

THIS CATEGORY PROVIDES FOR THE MAINTENANCE OF LAID AWAY PORTIONS OF ACTIVE ARMY AMMUNITION PLANTS, INACTIVE PLANTS AND INACTIVE LINES AT CONTRACTOR PLANTS. IT SUPPORTS MAINTENANCE, PROTECTION, AND ESSENTIAL REPAIR OF GOVERNMENT-OWNED EQUIPMENT AT THESE FACILITIES IN ANTICIPATION OF FUTURE PRODUCTION NEEDS.

LAYAWAY OF INDUSTRIAL FACILITIES:

THE REQUEST PROVIDES FUNDS FOR THE INITIAL PROTECTION AND PRESERVATION OF EQUIPMENT AND FACILITIES NO LONGER REQUIRED FOR ACTIVE PRODUCTION, BUT WHICH MUST BE RETAINED FOR FUTURE PEACETIME OR CONTINGENCY NEEDS. INCLUDED ARE FUNDS TO LAYAWAY AMMUNITION LINES AT VARIOUS FACILITIES WHERE PRODUCTION IS PROJECTED TO END, PLANT CLEARANCE EFFORTS, AND COSTS ASSOCIATED WITH MOVING EQUIPMENT TO STORAGE SITES OR DISPOSAL POINTS.

PROVISION OF INDUSTRIAL FACILITIES:

THE REQUEST PROVIDES FUNDING FOR EQUIPMENT REPLACEMENT AT ACTIVE PLANTS AND CORRECTION OF SAFETY AND ENVIRONMENTAL DEFICIENCIES.

PROVING GROUND MODERNIZATION/COMPONENTS FOR PROVE-OUT:

THESE CATEGORIES PROVIDE FUNDING TO REPLACE OBSOLETE OR UNECONOMICALLY REPAIRABLE TEST EQUIPMENT AND INSTRUMENTATION USED TO CONDUCT PRODUCTION ACCEPTANCE TESTING OF AMMUNITION COMPONENTS AT ARMY PROVING GROUNDS, AND FUNDING FOR COMPONENTS USED IN PROVEOUT.

CONVENTIONAL AMMUNITION DEMILITARIZATION:

THE DEMILITARIZATION STOCKPILE HAS GROWN DRAMATICALLY OVER THE PAST YEAR, REACHING 345,000 SHORT TONS FROM A PREVIOUS LEVEL OF 200,000 SHORT TONS. THIS LARGE INCREASE IS ATTRIBUTED TO

HIGH LEVELS OF TURN-INS FROM ALL SERVICES, OVERSEAS BASE CLOSURES, AND CORRECTION OF INACCURATE DEMIL RECORD WEIGHTS AND COMPONENT DATA. THE BUDGET REQUEST SUPPORTS DEMILITARIZATION OF NEW GENERATIONS, ESTIMATED TO EXCEED 30,000 SHORT TONS PER YEAR, AND A SMALL PORTION OF THE 345,000 SHORT TON BACKLOG. BEGINNING IN FY1994, THE BUDGET REQUEST FOR EACH SERVICE WILL INCLUDE FUNDING FOR DEMILITARIZATION OF AMMUNITION ADDED TO THE DEMIL ACCOUNT. THE ARMY WILL CONTINUE TO FUND DEMILITARIZATION FOR STOCKS PLACED IN THE DEMIL ACCOUNT THROUGH FY1993, REGARDLESS OF SERVICE OWNERSHIP.

IN MARCH 1993 WE FORWARDED TO THE CONGRESS OUR CONVENTIONAL AMMUNITION DEMILITARIZATION MASTER PLAN. THIS PLAN OUTLINED THE DIRECTION OF OUR DEMIL PROGRAM FOR THE NEXT FIVE YEARS. WE ARE MOVING INTO NEW AREAS, TO INCLUDE CONTRACTING OF SELECTED DEMIL OPERATIONS TO PRIVATE INDUSTRY. WE ARE ALSO REVIEWING THE DEMIL CAPABILITIES OF OUR GOVERNMENT OWNED, CONTRACTOR OPERATED AMMUNITION PLANTS.

ONE OF THE KEY ELEMENTS OF THE DEMIL MASTER PLAN IS DEVELOPMENT OF NEW DEMIL TECHNOLOGY. AS ENVIRONMENTAL LAWS CONTINUE TO LIMIT TRADITIONAL DISPOSAL METHODS SUCH AS OPEN BURNING AND OPEN DETONATION, NEW AND BETTER METHODS MUST BE FOUND.

THE ARMY HAS ENTERED INTO A COOPERATIVE DEMIL RESEARCH AND DEVELOPMENT PROGRAM WITH THE OTHER SERVICES TO BETTER FOCUS EFFORTS IN THIS IMPORTANT AREA.

THE COMBINED EFFECTS OF BASE REALIGNMENT AND CLOSURE AND THE CONSOLIDATION OF OUR DEPOT SYSTEM, COUPLED WITH LARGE STOCKPILE RETURNS FROM EUROPE, HAS PLACED AMMUNITION STORAGE SPACE AT A PREMIUM. THEREFORE IT IS MORE IMPORTANT THAN EVER TO ELIMINATE OUR UNSERVICEABLE/EXCESS AMMUNITION STOCKS IN A TIMELY AND EFFICIENT MANNER.

IN CONCLUSION, WE ARE IN AN ERA OF GREAT CHANGE. WE IN THE DEFENSE INDUSTRY MUST MAKE SACRIFICES ALONG WITH THE REST OF THE NATION IN ORDER TO ACHIEVE OUR NATIONAL OBJECTIVES. AT THE SAME TIME, OUR ARMED FORCES MUST BE TRAINED AND READY TO PROTECT OUR NATIONAL INTERESTS. I WOULD LIKE TO THANK YOU AND THE MEMBERS OF YOUR COMMITTEE FOR YOUR TIME AND SUPPORT. I SOLICIT YOUR CONTINUED SUPPORT AND LOOK FORWARD TO WORKING WITH YOU IN THE CHALLENGING DAYS AHEAD. I WILL BE HAPPY TO ANSWER YOUR QUESTIONS.

AMMUNITION BUDGET REQUIREMENTS

Mr. DICKS. At \$734.4 million, the ammunition procurement request is the lowest since before the Vietnam War. Over the years, the Army has testified that a funding level of about \$2 billion per year was needed to sustain training and war reserve modernization. Last year, General Schumacher testified that about \$1.3 billion would support the reduced force structure. Your actual request is about half that. What is the impact on training and war reserve modernization of your fiscal year 1994 request for ammunition procurement?

General HOLMES. As the force continues to draw down, this budget is adequate to support training which between 80 and 100 percent of the requirements, depending on which category, and supports a modest modernization of new ammunition, principally tank ammunition, and the sense and destroy armored munition for the 155 Howitzer.

Mr. DICKS. What specific budget deficiencies concern you?

General HOLMES. The budget reflects the best balance of available funds and Army priorities. There are some deficiencies in the small arms arena principally in 50-caliber ammunition, but it is manageable.

Mr. DICKS. How is it manageable?

General HOLMES. In the sense that should we have increased requirements, small arms is the easiest part of the ammunition sector to increase production. We have the small arms facility at Lake City, and if we were going to have any shortages we prefer to have them in that arena because it is the easiest to bring up production.

Mr. DICKS. What funding levels for ammunition procurement are being contemplated for the years beyond fiscal year 1994?

General HOLMES. Beyond fiscal year 1994, the levels approach \$1 billion throughout the FYDP period.

Mr. DICKS. Do you think that will hold up?

General HOLMES. Well, sir, I am hopeful it will, but in this environment of dollar shortages, everybody has to contribute and the ammunition account is no exception.

Mr. DICKS. Are we bringing back the ammunition from Europe or are we leaving it there?

General HOLMES. We are in the midst of returning considerable quantities of ammunition from Europe. This year we plan to return 120,000 short tons. That program is well under way and through the second quarter we have returned almost 90,000 short tons from Europe this year.

Mr. DICKS. Where are you storing it?

General HOLMES. We are putting it in available storage locations in the continental United States.

If we don't have any more serious closures through the BRAC process, available storage space is adequate for the retrograde program.

Mr. DICKS. What was the name of that program?

General HOLMES. Retrograde. That means return of ammunition from overseas.

Mr. DICKS. Does that help you at all?

General HOLMES. You mean personnel-wise?

Mr. DICKS. The ability to bring this ammunition back to the United States. If you are worried about war reserves or training stocks, does that help?

General HOLMES. Yes, sir, in some instances. Where it really helps is reducing the costs of maintaining those assets overseas because we close facilities overseas as we empty out the ammunition.

DEFENSE PLANNING GUIDANCE

Mr. DICKS. Traditionally the Army based its ammunition planning and budgeting based on Defense Planning Guidance which specified a number of "days of supply" of war reserve munitions leading to industrial base "mobilization" to sustain the supply in a war time scenario.

What changes have been made in the Defense Planning Guidance?

General HOLMES. There has been a major change in the way we calculate ammunition requirements. In the past, we planned for a mobilization requirement to meet a worldwide conflict in three theaters, and that generated a large requirement for ammunition.

The Defense Planning Guidance from May of last year now requires planning for only two regional contingencies, one east and one west, and that has dramatically reduced the ammunition requirements.

Mr. DICKS. You are talking about two regional scenarios. Do we have a surplus?

General HOLMES. We have much more ammunition than is required in particular categories. In some categories we have shortages, but in many—particularly in artillery—we have much more than are required.

Mr. DICKS. Can you send us up a list of surplus ammunition, as well as a list of your shortages, or have you already done that?

General HOLMES. I don't believe I have, but I can provide it for the record.

Mr. DICKS. Let's get that list.

[The information follows:]

Ammunition items in short supply include the 25mm APFSDS-T M919, 120mm Mortar HE and Smoke, 120mm Tank M830A1 and M829A2, 155mm Sense and Destroy Armor (SADARM) and the Volcano mine system. All of these items are in production or scheduled to enter production in the fiscal year 1994 funded delivery period. Major areas where surpluses exist include artillery projectiles, fuzes and propelling charges, and older, less capable tank ammunition.

Mr. DICKS. For how many days of regional contingency warfighting is the Army now required to provide ammunition? You have two regional scenarios. How long are they supposed to last?

General HOLMES. ———.

Mr. DICKS. And then what? We run out of ammunition?

General HOLMES. No, sir.

The plan is that the conflict resolution will be accomplished in that period of time.

Mr. DICKS. How were the number of days of supply determined?

General HOLMES. The day of supply methodology is not used any more. We get a set of assumptions the theater commanders use to

determine what they need to accomplish their objectives. That translates to the quantities of ammunition required.

Mr. DICKS. In your professional judgment, is this two-scenario plan adequate to fight a future "come as you are" war? Are you comfortable with this scenario and with the amount of ammunition that we have to deal with it?

General HOLMES. Yes, sir. I am confident of that. The only concern, of course, is that we do continue to draw down our war reserve stocks for training. Fifty-three percent of this year's appropriation request is for training and in addition to that we are drawing down about \$500 million of war reserve stocks for training purposes.

Continuing in that process we have adequate stocks of, for example, artillery ammunition to last until probably 1999.

Mr. DICKS. Provide for the record the current calculation of days of supply, through the fiscal year 1994-funded delivery period, for major ammunition end items.

[The information follows:]

The Army no longer uses "days of supply" as a measurement for wartime readiness. The Army's total war reserve requirements are based upon two major regional contingencies and maintaining adequate combat postures for forward deployed and U.S. based forces. The "percent fill" to the war reserve requirement as a measurement of readiness for key warfighter munition rounds on hand at the end of the fiscal year 1994 funded delivery period is shown below.

| Item: | Percent of
requirement |
|---|---------------------------|
| Ctg, 5.56mm Ball f/M16A2 | 100+ |
| Ctg, 25mm HEI-T M792 | 100+ |
| Ctg, 25mm APFSDS-T M919 | Deleted |
| Ctg, 30mm HEDP M789 f/Apache | 100+ |
| Ctg, 40mm HEDP M430 f/MK19 | 100+ |
| Ctg, Mortar, 120mm HEMO XM934 | Deleted |
| Ctg, Mortar, 120mm HEDP XM933 | 100 |
| Ctg, Tank, 105MM APFSDS-T M900 | Deleted |
| Ctg, Tank, 120mm MP M830A1 | Deleted |
| Ctg, Tank, 120MM APFSDS-T M829A2 | Deleted |
| Proj, Arty, 105mm HERA M913 | Deleted |
| Proj, Arty, 155mm HE M107 | 100+ |
| Proj, Arty, 155mm DPICM M483 | 100+ |
| Proj, Arty, 155mm Baseburner M864 | 100+ |
| Proj, Arty, 155mm HE RAP M549 | 100+ |
| Proj, Arty, 155mm ADAM-S M731 | 100+ |
| Proj, Arty, 155mm ADAM-L M692 | 100+ |
| Proj, Arty, 155mm RAAMS-S M741 | 100+ |
| Proj, Arty, 155mm RAAMS-L M718 | 100+ |
| Proj, Arty, 155mm Copperhead | Deleted |
| Proj, Arty, 155mm SADARM | Deleted |
| Rocket, Hydra 70 MPMS HE M261 | Deleted |
| AT4 Multi-Purpose Weapon | 100+ |
| Volcano Mine System | Deleted |

AMMUNITION MOBILIZATION BASE

Mr. DICKS. What impact has this change had on the previous requirement to maintain a mobilization base?

General HOLMES. It has had a considerable impact. As I mentioned, sir, prior to the new Defense Guidance issued in May of last year, we planned for a worldwide conflict that would require mobilization and large quantities of ammunition.

Under the new Defense Guidance, those requirements are much smaller and we also plan for replenishment at the completion of the conflict. ———. We will have to replenish stocks that were used up in the conflict.

So that drives down the production capacity that we need to keep available to meet the requirement.

Mr. DICKS. But what you are really saying is that we are not going to have a mobilization base.

General HOLMES. We will have ———.

Mr. DICKS. That is a big difference from before.

General HOLMES. Yes, sir. I wouldn't say that we are not going to have a mobilization base. What we are going to have are facilities laid away that are available to meet the replenishment requirements outlined in the Defense Planning Guidance, but we are not going to have the large production base to meet the former mobilization requirements, you are right about that, sir.

Mr. DICKS. What is the difference between "replenishment" and "reconstitution" in the new guidance and what time periods apply to each?

General HOLMES. Replenishment addresses replacing losses resulting from a contingency and reconstitution addresses rebuilding a force up to that required to fight a global scenario.

In other words, replenishment is to buy back the ammunition that was used in the conflict. Reconstitution is to buy the ammunition that would be required to support a force much larger than it is today, going back up to say 20 divisions. ———.

Mr. DICKS. How is the Army going about determining replenishment and reconstitution requirements?

General HOLMES. The budget was formulated the same way it was in the past. The only thing different is that the quantity we procure is calculated differently than it was in the past as I described. The quantities required for war reserve and for training are calculated and then included in the budget formulation process. We procure to meet that quantity. We plan for replenishment but do not procure the rounds until after the conflict.

Mr. DICKS. Please explain other changes which are being made in the way the Army calculates its ammunition procurement requirements.

General HOLMES. One change, as you pointed out, is that we no longer maintain the large mobilization base we had in the past. Therefore, the requirement for activity two funds for maintenance of the production base should start decreasing in future years.

Mr. DICKS. Mr. McDade?

DEFENSE PLANNING GUIDANCE

Mr. McDADE. Thank you, Mr. Chairman.

General, welcome. We are delighted to have you here and to hear your presentation which is I know for you and I know for us troublesome. You probably have the task of running one of the most difficult budgets in the entire DOD spectrum at the moment.

You have certainly gotten a hot seat and we want to work together with you to see that we do what is right for the country.

As the chairman has pointed out, this will be the lowest amount requested for ammunition for how many years, General?

General HOLMES. Since before the Vietnam War, sir.

Mr. McDADE. ———.

General HOLMES. ———.

Mr. McDADE. ———.

General HOLMES. ———.

Mr. McDADE. How many years were we in Vietnam?

General HOLMES. A lot, sir.

Mr. McDADE. Korea, the same way. If we get caught in a situation like that with this new plan without a mobilization plan, we say what have the bins got in them today and if we get into a war, what do we want to plan for and the planners tell you what is required is ——— days and you live on that.

You say that if you use all that stock or if you draw down not having a mobilization plan, you would then replenish or reconstitute?

General HOLMES. Yes, sir.

AMMUNITION PLANTS

Mr. McDADE. At the same time you requested that we close—you originally had 16 plants, including Mississippi making ammunition, and you have closed 8 of them thus far, the Army has; is that correct?

General HOLMES. In fiscal year 1992, we had 15 plants and by fiscal year 1995 we will be down to 8 plants.

Mr. McDADE. Are you requesting funding to keep all those eight in production?

General HOLMES. Yes, sir.

All eight of those are planned to remain active in fiscal year 1994. All those will be work loaded.

They will remain active in fiscal year 1995 also.

Mr. McDADE. You are telling me that the plants that make both explosives and artillery shells will be funded in fiscal year 1994 at the current level?

General HOLMES. No, sir. It may not be at current levels, but those plants, when we say they are active, they will continue to be workloaded by the government. When they revert to inactive status the Army no longer workloads the plants.

We may have an operating contractor still operating the plant for us and he may have activity there, but he is doing third-party work for someone else.

Mr. McDADE. Foreign military sales?

General HOLMES. Yes, sir.

Mr. McDADE. Your budget doesn't provide for funding all those plants, does it?

General HOLMES. For the eight plants we plan to retain in active status, yes, sir: Radford, Holston, Crane, McAlester, Lone Star, Milan and Iowa.

Mr. McDADE. None of these make artillery shells, do they?

General HOLMES. No sir. none make the metal parts. Milan is a load, assemble and pack plant.

Mr. McDADE. Is it true that the only fiscal year 1994 artillery shell the Army plans to procure is the SADARM?

General HOLMES. That is correct.

Mr. McDADE. What is the total quantity that you intend to buy if it gets to production in fiscal year 1994? How much is in the budget?

General HOLMES. Twelve hundred rounds in fiscal year 1994, sir.

Mr. McDADE. Hardly enough to keep a plant of any size going. Do you intend to put that on the street?

General HOLMES. It will be done by a system contractor and the metal parts will probably be a subcontractor.

Mr. McDADE. My point is that after fiscal year 1994, there won't be any artillery shell manufacturers left in the country. The only round you will be procuring in fiscal year 1994 is the SADARM?

General HOLMES. Yes, sir.

Mr. McDADE. If they have foreign military sales, so be it, but that is it. ———.

General HOLMES. That is correct, sir.

Mr. McDADE. We have had hearings on the M-1 tank, on the F-18, and Seawolf, hearings on a host of programs that cover the question of industrial base and when you say that, you get into some kind of a situation and you only have to plan for it now not to mobilize but ——— what you do if the plants are sitting idle and nobody working in them?

General HOLMES. Our plan is to lay away those critical facilities. ———.

Mr. McDADE. Layaway is a euphemism for saying we are locking the door and not producing any more.

General HOLMES. Not producing, but the equipment, machinery and facilities are preserved in a way that they can be reactivated within the time lines.

Mr. McDADE. The equipment is there, but where is the manpower?

General HOLMES. That is a real concern.

AMMUNITION MOBILIZATION POLICY

Mr. McDADE. We had hearings on the M-1 tank, which originally the Pentagon said they were going to stop building. We had hearings about what the Army had to do to get the welders necessary to manufacture the tank, how many States they had to go into, how long it took them to get the people involved to build a ruggedized vehicle.

We have kept the line open. We had discussions back and forth between the Committee and the Department and reached a common decision that the industrial base of the nation required that we never go completely cold on a tank line.

Now the question here is artillery and ammunition and whether we have a mobilization policy or whether we are going to let some planner say we are going to have a ———. Is that comfortable planning? I have reservations about it. I think a lot is as a result of the changes in the world, but a lot of it is budget driven. You are forced to make decisions you wouldn't ordinarily make if you

wanted to see you were totally comfortable about the security of the country; is that right?

General HOLMES. Yes. It is the changing world environment and the associated reduction in the defense part of the national budget.

Mr. McDADE. Whether we are talking about the Army or the military in general, in this committee we have been very sensitive to operations money to maintain quality-of-life because we knew and you knew that the most important thing you had were good people and that once you began to disband the people, the organization began to go with it. Here we are making a judgment based on a policy plan that says only —— and we don't have to worry about where all those people will be, that somehow we will have a plant laid away, we will have some equipment that might be 5 or 6 years without use because I think you said it would be 5 years before you went back into production, didn't you?

General HOLMES. It could be that long. Yes, sir.

AMMUNITION PROCUREMENTS

Mr. McDADE. You mentioned the FYDP—Five Year Defense Program. Is there money in it for artillery outside of SADARM for the next five years?

General HOLMES. There is no requirement to procure artillery, except for 155mm M804 training rounds.

Mr. McDADE. No money in the budget?

General HOLMES. There is a small buy for the 155mm M804 training round.

Mr. McDADE. Any new rounds at all?

General HOLMES. No, sir.

Mr. McDADE. Where are you going to make SADARM?

General HOLMES. One thing we are working on to ease the problem is facility contracting at our GOCO plants, which hopefully will provide a mechanism for operating contractors to retain a cadre of work force by doing work other than Army-directed work.

Mr. McDADE. The Army is the executive agency for ammunition buying for all the services. With respect to that, as you look at implementing this, what I think is a very dangerous policy, have you been able to look across the shelf of the services to see the total requirement as the executive officers, so to speak, for the purchasing of ammunition, been able to look at Air Force requirements, Navy requirements. Army requirements, and stack them up to see whether there is an alternative out of that to have some kind of industrial warm base going?

General HOLMES. Yes, sir. The plans are based on the single manager's role as the procuring agent for ammunition. We look at requirements of all the services and have examined them in detail to get to the point where we are now.

Mr. McDADE. What is the Navy procurement for the next five years?

General HOLMES. There is current production of five-inch shells for the Navy, but I don't have the details with me right now.

Mr. McDADE. Provide it to us for the record.

[The information follows:]

The Navy has budgeted \$55.2 million in Fiscal Year 1994 for procurement of 5 Inch/54 Gun Ammunition. The best source for information on future year procurements is the Navy.

AMMUNITION FACILITY CONTRACTS

Mr. McDADE. I wanted to get into that facility contractor decision that you are trying to make and I applaud you because it is a way perhaps that all of us can find a way to keep what we all need together, not only the base, but the people who can deliver the product in a quality fashion. What is the status of that? Where are you and what are you doing?

General HOLMES. We are making real progress with that.

Mr. McDADE. Is there money in the budget for that?

General HOLMES. It is not specifically for facility contracting. There is money in the budget under the ARMS initiative which is an adjunct to that.

We have executed a facility contract at the Mississippi and Indiana plants and are well along on facility contracts at other plants that should be completed before the end of the——

Mr. McDADE. That permits that organization to try to go out to some private commercial source or wherever they can and compete in the marketplace for additional work?

General HOLMES. Yes, sir.

Mr. McDADE. You have waived rental fees, charges that you used to charge that made them noncompetitive and you are now trying to make them competitive; is that right?

General HOLMES. We have waived rental fees for government contractors and are seeking a deviation from acquisition regulations to do the same for commercial contractors.

Mr. McDADE. Are you going to do that with every government-owned plant?

General HOLMES. We have done it for Mississippi and Indiana. The Kansas plant should be accomplished in the next month or so. The Sunflower plant should be done in mid-summer. Scranton is scheduled to be done by the end of this fiscal year; Radford in probably January or February of next year and Iowa at about the same time.

There are seven plants that we are actively pursuing now and we plan to expand this to all——

ARMS INITIATIVE

Mr. McDADE. Is there a separate fund for these contracts or are you just going to remove the impediments to getting other work into the plant?

General HOLMES. The facility contract will provide the mechanism. Then the ARMS initiative is designed to provide funding for the facility contractor to market the facility, to generate commercial or other government work for the plant.

Mr. McDADE. It is hopefully something that they will be able to accomplish?

General HOLMES. Yes, sir.

Mr. McDADE. We have never done this before?

General HOLMES. No, sir.

Mr. McDADE. We provided \$200 million in last year's budget. You said that money would cover all requirements in 1993 and 1994?

General HOLMES. Yes, sir.

Mr. McDADE. Describe if you will where you are in this particular stage of the program?

General HOLMES. As you are aware, sir, the program was authorized in a fashion that \$60 million was made available initially. We owe the Congress a report by August of this year detailing what our plans are for the \$60 million and at that time the additional \$140 million will be released.

Of the \$60 million that has been made available, \$5 million has been released to the Army. We have sent about \$3.4 million of that out to Rock Island, who is executing the program and we retained about \$1.6 million of it here to cover the loan guarantee aspects of the program and administrative support.

We are in discussions with the Small Business Administration and the Commerce Department about how that particular process would work. Since last October, we have submitted the first quarterly report to the Congress as required. We have formed a working group both here in Washington amongst all the interested agencies and—

Mr. McDADE. Put into the record what groups are involved.

[The information follows:]

The Assistant Secretary of the Army for Research, Development and Acquisition designated the Commander, Army Materiel Command (AMC) to be responsible for the implementation of the ARMS Initiative. This has been accomplished in two ways. First, the Commander, AMC, assigned to the Commander, Armament, Munitions and Chemical Command (AMCCOM), the responsibility for the overall development of a comprehensive ARMS Initiative Implementation Plan (AIIP). The Commander, AMCCOM, in-turn has established an ARMS Working Group to oversee the development and implementation of the AIIP and facility contracting, which is the mechanism being used to implement the ARMS Initiative at each designated government-owned, contractor-operated Army Ammunition Plant. Second, the Commander, AMC, through his Deputy Chief of Staff for Ammunition, has established an ARMS Task Force at AMC Headquarters responsible for the overall policy development, coordination, and executive level management of the ARMS Initiative. The AMC ARMS Task Force also is responsible for the establishment and oversight of the ARMS Advisory Committee, referred to as the ARMS Public-Private Task Force.

With this management structure in place, the Army is well on its way to identifying, addressing, and finding innovative solutions to the many difficult issues associated with the implementation of the Congressionally mandated ARMS Initiative.

General HOLMES. We have executed two facility contracts which provide the vehicle for opening up the ARMS initiative. Several members of the congressional staff, my staff and myself are talking to the contractors and to the community about the ARMS program and its potential.

ARMS CONTRACTS

Mr. McDADE. I know you have been on the grounds. Are there any contracts signed or about to be signed as a result of ARMS?

General HOLMES. Yes. There are some that are going to be executed before the end of this fiscal year.

Mr. McDADE. Do you have any idea how many before the end of the fiscal year, General?

General HOLMES. No, sir. I could get that.

[The information follows:]

Subcontracting interest at the ARMS Initiative prototype facilities are:

| Subcontract status | Mississippi | Indiana |
|--------------------|-------------|---------|
| Inquiries..... | 29 | 17 |
| Still active..... | 13 | 5 |
| Signed..... | 2 | 1 |

Companies which have signed and/or negotiating subcontracts are:

Mississippi AAP—Business Activity

Signed:

AVM Enterprise, Inc..... Outrigger/crane fabrication.
XEROX Inc. General office space.

In negotiation:

ChemTex, Inc..... Sodium Azide for air bags.
Joint Business Venture..... Metal manufacturing process.

Indiana AAP—Business Activity

Signed:

C-Way Tool & Die, Inc..... General welding (6K sf).

In negotiation:

Re-Quest-A-Temp..... General office space.
Dean Enterprises..... Wholesale tire storage (12K sf).
Wilson Ed. Center..... Servicing office equipment.

ARMS IMPLEMENTATION

Mr. McDADE. How will you coordinate with the conversion money which the Committee appropriated? Are you wearing that hat, too?

General HOLMES. No, sir. I am not involved with that.

In the trip that we took to the plants, we did have some people from the Office of the Secretary of Defense, Office of Economic Adjustment, that went with us to discuss study and grant programs. Where the ARMS initiative is inside the fence at GOCO plants the Office of Economic Adjustment is outside the fence. We had joint meetings with the communities and with the contractors to discuss how they can tie into each other.

Mr. McDADE. Could you give us an example of how the two might work together? I am trying to get something in the record about how all of this might have come together in some of your meetings that you held around the country.

General HOLMES. At the Kansas plant, we had a meeting hosted by the operating contractor. We had maybe 35 to 50 people from the local communities that attended.

We had local press coverage from three television stations and a radio station about the event. The people from the communities participated in discussions, asked questions, and threw out some ideas about things they thought the contractor could do to bring work into the facility.

They talked to the Office of Economic Adjustment folks about the availability of funds for them to prepare a brochure about the

community, laying out what it was like, and the transportation network. They also talked to the operating contractor folks about how the community ideas could be linked into what the contractor was planning at the facility.

Mr. McDADE. Any contracts resulting that you are aware of from the conversion activities?

General HOLMES. No, sir; none that I know of. There may be, but I am just not aware of them.

Mr. McDADE. My time is running out. The Committee has been very generous. I appreciate your frankness and your candor. We will be in future discussions with you about this because as you know I have a deep concern about whether or not this is correct policy for the country.

Mr. DICKS. Mr. Darden?

Mr. DARDEN. Thank you, Mr. Chairman. General, let me also welcome you in your first official appearance before the Committee. I want to associate myself with the very decisive remarks of our Ranking Member about the preservation of our industrial base. It is good to have the luxury of being able to request a low budget, but I am sure you share the concern about preservation of this capability, that we have worked so long to achieve, and that it be kept so that we—if unforeseen circumstances occur—will be able to manufacture the necessary amount of ammunition and other munitions.

Don't let this University of Georgia tie intimidate you, but I have a son at Georgia Tech so we have a very broad-minded family.

Where is your hometown?

General HOLMES. Macon, sir.

SIMULATION DEVICES

Mr. DARDEN. I am from halfway between Macon and Augusta in Hancock County.

I am interested in some of the initiatives that the Army has taken lately in the area of simulation.

I realize there is no substitute for training exercises using live ammunition, but do the efforts made by Army recently toward training in simulators, within your area of authority?

General HOLMES. What falls within my purview is any ammunition that is used specifically for training, for example, the 35mm subcaliber round used for training on the Abrams tank. But beyond that, that is not within my purview.

However, I keep up with what the simulation world is doing because that directly influences what the ammunition requirements will be because the more good training we can get with simulation, the less ammunition we have to buy.

Mr. DARDEN. Could you give us an idea of whether or not any of the simulation programs have been able to significantly affect your amount of acquisition?

General HOLMES. No, Sir, I don't believe so yet. There is really no substitute for live fire training. Simulation is great and you get

a lot out of it, but a certain amount of live fire training is necessary.

I think we will see the effect of simulations beginning in the mid-nineties, about 1995 and beyond when we plan to reduce the number of tank rounds required for each crew from 100 down to 80.

So as these simulators become routine and are used more and more, we will see, I believe, ammunition requirements decreasing.

TRAINING AMMUNITION

Mr. DARDEN. You have walked into one of my next questions, that is, to what extent do the training exercises and the amount of training that you do now deplete your existing supplies?

In other words, are you asking for enough money to replace that ammunition that you are using in training during the current year or are we getting into your existing supplies with our current level of training?

General HOLMES. As I may have mentioned, training buys this year are about 53 percent of our budget request. In addition to that, we are drawing down from the war reserve stocks about \$500 million worth of ammunition to use for training, ammunition that can be used for either war reserve or training purposes.

There are three different types of ammunition. You have ammunition that is used only for training like the M865 round for the tank. You have rounds that can be used either for war reserve or training like the M107 artillery projectile and you have rounds used only for war reserve.

We procure training unique rounds and some dual-use rounds for training and also draw down from the war reserve account to meet training requirements.

Mr. DARDEN. What is the technical difference between a training-only round and a dual-use round?

General HOLMES. A training-only round is not used for combat. For example, we have a round that we use for mortar training whose range is only a couple of hundred yards so you get the effect of dropping the round down the tube, hearing the noise, seeing the rounds go off, but you don't have to have a big range.

Mr. DARDEN. It wouldn't be practical then to acquire only dual-use rounds then?

General HOLMES. No, sir.

Mr. DARDEN. I was trying to determine some way where we could keep our level up, but the training-only rounds are specifically for that purpose and you actually need those because of the size of the ranges?

General HOLMES. Yes, sir, and generally the training-only rounds are considerably cheaper than are war reserve or the dual purpose.

Mr. DARDEN. Thank you very much.

Thank you, Mr. Chairman.

Mr. DICKS. Mr. Young?

120 MILLIMETER TANK AMMUNITION

Mr. YOUNG. Thank you.

General Holmes, you might have the impression by now that this committee is concerned about mobilization capabilities and our industrial base.

I am going to follow along on the same type of questions that you have already heard, but I want you to apply those questions to the 120-millimeter tank round. I am concerned about what I think I see happening in the business of 120-millimeter tank ammunition production. You have two contractors, Olin and Alliant. Olin had the lead for kinetic ammunition and Alliant the lead for high explosive ammunition.

What was the minimum production rate needed to keep both manufacturers in business and able to respond to a mobilization?

General HOLMES. Twenty-four thousand for the kinetic energy rounds per year and twenty thousand per year for the chemical rounds.

Mr. YOUNG. Your budget calls for the 24,000 rounds of kinetic energy, but only calls for 18,000 rounds of high explosive.

Does that 2,000-round shortfall cause you any problems?

General HOLMES. I don't believe that is a significant problem. This is for initial production when the contractor is building up that rate; in the future we will be up to the 20,000-round sustaining rate.

Mr. YOUNG. Would that start as early as fiscal year 1995?

General HOLMES. Yes, sir.

120 MM TANK AMMUNITION PROCUREMENT STRATEGY

Mr. YOUNG. With Olin and Alliant, both have unique production facilities and capabilities. If the Army conducts a down select, what would happen to the unique production facilities of the losing contractor? Would that be one of those you talked to Mr. McDade about, they would be mothballed?

General HOLMES. Yes, sir. We have not yet settled on doing the down select. The fiscal year 1994 procurement will keep both Alliant and Olin operating as we did in the fiscal year 1993 procurement.

We plan to do a multi-year procurement for fiscal year 1995 to 1998 to achieve cost savings and permit the contractors to plan further ahead for what they are going to do.

The mechanics of how that will work have not yet been decided upon. We have not yet decided whether the multi-year will be a down select to a single vendor or whether we will continue to carry both forward in the multi-year.

There are many arguments to keep both of them in the base and we are of course struggling with the affordability issue.

Mr. YOUNG. Do you have any feeling whether that decision might be made and whether there will be a down select or not?

General HOLMES. That decision will probably be made this fall, in September or so.

Mr. YOUNG. So we are not far away from that decision. If a decision to make that down select is made, when would the down select occur?

General HOLMES. In the fiscal year 1995 program, so it would be two years away before production would start.

Mr. YOUNG. Say the down select occurred and Alliant was chosen, would that give them enough time to develop the unique capability they would need to produce the kinetic energy rounds?

General HOLMES. We believe so. We believe that by that time the drawings and the production process will have matured sufficiently that the capability can be transferred from the one producer to the other.

Mr. YOUNG. If the down select went to Olin, would they be able to adequately in that time frame be able to produce the chemical high-explosive round?

General HOLMES. Yes, sir. By that time, we will have wrung out the problems you always have going into production and we believe that the technical data will be mature enough to transfer to the other contractor.

Mr. YOUNG. In either case, either one would have to change tooling at considerable cost, I would expect, to whichever one was chosen.

General HOLMES. Yes, sir. They would have to make sure that they had covered that adequately in the bid proposal for the down select.

Mr. YOUNG. In the concern for the mobilization capability, to maintain a strong industrial base, wouldn't it be smarter to keep both contractors, obviously at a lesser cost because neither one would have to retool?

General HOLMES. Well, sir, the purpose for the down select, is to reduce cost because through competition we get the most ammunition for the least dollars.

You are right sir. If I had my way, I would certainly keep both contractors operating as long as possible, but when we have such a limited pot of dollars available——

Mr. DICKS. You know what is going to happen, General? You lose one contractor, and then you get a low bid for one year and next the bid is going to go up. It seems to me by having two competitors you have a better chance of keeping the prices down. I am very concerned with such a plan.

General HOLMES. As I said, we have not settled on that plan yet. This is one of the alternatives being considered.

Mr. DICKS. We have seen this happen a million times. We say we are going to have a competition, and the prices go up after that. You have a sole-source situation that never works out for the government. I hope you think this through very carefully.

Mr. YOUNG. But the real negative is—what Mr. Dicks pointed out is right and our experience has been that, but the industrial base goes away or part of it goes away. As we are having to down size the entire military operation and the whole national defense effort, we are concerned about what happens if somebody pushes a switch and we are not ready for it. We have to maintain an industrial base that can mobilize and can surge.

Nobody expected that we were going to have to go to Desert Storm years in advance. It sort of caught us by surprise. Some of the intelligence briefings at the Intelligence Committee convinced Mr. Dicks and me that we don't know where the next problem might exist. I think you have to be prepared with the ability to surge when that time comes.

Mr. McDADE. Would you yield? I want to express my agreement with your statement. We are three or four days from the referendums in the former Soviet Union. I think all of us would agree that we hope Mr. Yeltsin succeeds, but what happens if he is repudiated? He said he would resign. What happens to the mobilization plan that we are currently operating under; the non-mobilization plan, I should say?

We have intelligence estimates that the former Soviet Union could be in turmoil for a decade and all of those things are questions that if you do have to be ready to go, we don't need peaks and valleys anymore.

We have tried to avoid peaks and valleys in the defense budget. We are sure heading down into a valley right now in my opinion.

Thank you, Mr. Chairman.

Mr. YOUNG. I am convinced that maintaining the industrial base is essential and that going to sole source unless you have a really good reason to go to sole source in my opinion is not the best decision to make. And I don't think in the outyears you are going to get your product less expensive than you will if you have more than one source.

General HOLMES. Yes, sir. Let me emphasize that we are not committed to this down select to go to a single source. We intend to maintain the two producers as long as we can. We are willing to pay as much as a 15 percent premium to do that, but as the requirements come down, it is really tough to have enough to give to both of them to keep both in business.

Mr. YOUNG. The first question I asked was what production rate would be needed to keep both companies viable and the rate that you mentioned is the production rate that you are anticipating for 1994 and you said that would increase in 1995 so that really shouldn't be a problem.

General HOLMES. Yes, sir. That production rate stays through the multi-year window.

SALE OF AMMUNITION TO FOREIGN CUSTOMERS

Mr. YOUNG. Let me ask about one other general area. In foreign military sales, I think you are in a situation where it is a no-win situation. You are probably doing the right thing by taking surplus ammunition and selling it to our allies at a discounted price, but when you are doing that, you are also taking away a market from American producers.

You are probably doing the right thing, but it creates a problem for American producers. What do you see happening there in the future?

General HOLMES. I struggle with that constantly. On the one hand, we have unserviceable and obsolete ammunition that we are going to have to pay to demolish. So it is, I think, in our best interests to sell what we can to our allies.

In some cases commercial contractors have worked very hard to establish a market and by doing this we have cut them out of the market. I try to be sensitive to those on a case-by-case basis and when the contractors come talk to me about it, I talk to the foreign

military sales folks and see if we can't provide some sort of accommodation, but it is a problem.

Mr. YOUNG. I notice that an American company thought they had a contract to sell ammunition to Greece and then you sold it to them cheaper and they lost the contract. I understand it. That is a problem. I am not being critical. I was trying to get some opinions on it.

I would like to pursue some specific questions on the M829A2 rounds, the new KE rounds. I'll do that for the record because they are sort of technical and this way we can give you written questions. If you would respond for the record, I would appreciate that. Thank you, Mr. Chairman.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

120MM TANK AMMUNITION

Question. Both Olin and Alliant have unique production facilities and capabilities for the ammunition items in which they specialize. If the Army conducts a competitive "downselect", what will happen to the unique production facilities of the losing contractor?

Answer. If the Army awards a contract to a single bidder as a result of a competitive "downselect", the loser will not continue to function as a system prime contractor for tank ammunition. The loser, utilizing any of his unique capabilities, may continue to operate as a sub-contractor to the winning system prime. Olin and Alliant could participate in both medium and small caliber ammunition efforts as well as any work required by the other services.

Question. For example, if Alliant were to win the "winner take all" competition, how would Alliant go about producing KE ammunition for which only Olin is now facilitized?

Answer. In such a scenario, Alliant, replacing Olin as a system contractor, could use the same sub-contractor base. This includes raw material for sabot preforms, propellant, combustible cartridge case, depleted uranium penetrator, and a Load Assemble and Pack facility. The facilitization for current KE ammunition at these facilities would still be in place. Alliant could either sub-contract with Olin's Flinchbaugh operation for metal parts, sabot preforms, and projectile assembly or self facilitize its own sub-contractor base to accomplish similar operations.

120MM TANK AMMUNITION—M829A2 KE

Question. The latest version of KE ammunition is the M829A2. The Committee has questioned the need and affordability of this round. At the request of Congress, a GAO review of this round is underway. In the meantime, Congress last year provided \$18.2 million for fiscal year 1992 (through reprogramming) and \$29 million for fiscal year 1993 to initiate production. What is the contract status for the M829A2?

Answer. The fiscal year 1992 and 1993 program were combined and awarded as a sole source letter contract to Olin in October 1992. Final definitization is scheduled for mid-May 1993.

Question. When will deliveries from the fiscal year 1992/3 program begin and end? Provide a monthly delivery schedule for the record.

Answer. First articles for acceptance testing will be delivered in October 1993. Low Rate Initial Production (LRIP) cartridge deliveries are scheduled to begin in January 1994 and end in June 1994. Deliveries are scheduled quarterly due to smaller quantities and to reduce testing costs associated with lot acceptance.

| Delivery schedule | Delivery date | Quantity |
|--------------------|-------------------|----------|
| First article..... | October 1993..... | 250 |
| Lot #1..... | January 1994..... | 1705 |
| Lot #2..... | April 1994..... | 2600 |
| Lot #3..... | June 1994..... | 4250 |

Question. What is the schedule for first article and lot acceptance testing?

Answer. The LRIP First Article Acceptance Test is scheduled for October 1993. Lot Acceptance Tests will coincide with deliveries scheduled for January, April, and June 1994.

Question. The unit cost for the last procurement of the predecessor round, the M829A1, was about \$1,600. What will be the unit cost of the first production of the M829A2?

Answer. The total cost for the LRIP is \$5357.78.

Question. What is the basis of your estimated \$3,600 unit cost for the fiscal year 1994 procurement of the M829A2?

Answer. The unit cost is based on producing the cartridge at an economic quantity, an aggressive cost reduction program coupled with the valuable lessons learned from the Low Rate Production, and a significant Conventional Ammunition Working Capital Fund negative surcharge.

Question. What actions are currently underway to reduce the cost of this round? To what extent are they funded either by Olin or the government?

Based on experience with the initial production contract, is the \$86.1 million in your 1994 budget sufficient to procure 24,000 projectiles? If not what is a more realistic estimate?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. What is the current inventory of the M829 and the M829A1 and how many rounds are required to meet current Defense Planning Guidance?

Answer. The current inventory of the M829 is ——— cartridges. The current inventory of the M829A1 is ——— cartridges. The M829A1 total does not include undelivered assets from the fiscal year 1992 program. The current requirement for 120mm Tank Kinetic Energy ammunition is ———.

Question. What are the unique characteristics of the M829A2 which justify its significantly higher unit cost compared to the M829A1?

Answer. The M829A2 will provide the Army with a significant increase in lethality. The M829A2 will defeat all fielded threat systems at the required range, up to ——— meters farther than the

M829A1. The increased range will mean fewer US casualties and ensure battlefield superiority against expected threat systems through the mid 1990s. The increased performance of the M829A2 provides the Army with a hedge against Kinetic Energy reactive armor which is currently being evaluated by the test, Evaluation, Development and Intelligence communities.

120MM TANK AMMUNITION—M830A1 HE

Question. The budget includes \$50 million for the procurement of 18,000 rounds of M830A1 HE ammunition. Funding for this latest version of HE ammunition has been provided since fiscal year 1992. Why did it take until just last month to definitize the first production contract?

Answer. The original solicitation was for a Cost Plus Incentive Fee contract. After a complete government evaluation of the proposal and detailed fact finding discussions with the contractor, the Army decided to change the solicitation to a Fixed Price Incentive type contract in May of 1992. This decision was due to Alliant's fixed price contractual basis with the majority of its vendor base. The change in contract type required a new solicitation, proposal, evaluation, fact finding and negotiations.

Question. Provide for the record the monthly delivery schedule for the fiscal year 1992, 1993, and 1994 program.

Answer. The continuous fiscal 1992/3/4 deliveries begin in July 1993 and continue through November 1995. Production will be at a 1000 cartridges per month until August 1993 when they increase to a nominal 2000 cartridges per month and remain at that rate through November 1995. The Marine Corps quantity of 5,700 cartridges in the 1992 program is integrated into this delivery schedule.

Question. What is the schedule for first article and lot acceptance testing?

Answer. The First Article Acceptance Test is scheduled for June 1993. Lot acceptance for the 1992 and 1993 program will coincide with monthly deliveries. Lot acceptance for 1994 will be accomplished bimonthly to reduce testing costs.

Question. The unit cost of the initial production, negotiated last month, was \$4,000. Is the \$2,800 unit cost assumed in the fiscal year 1994 budget still reasonable? If not, what is a more reasonable estimate?

Answer. Yes. The unit cost is based on an incentivized cost reduction program, valuable lessons learned from production experience, producing the cartridge at an economic quantity and a significant Conventional Ammunition Working Capital Fund negative surcharge.

Mr. Dicks. Mr. Skeen?

INDUSTRIAL BASE

Mr. SKEEN. Thank you, Mr. Chairman.

General, I appreciate the fact that you have taken a very complicated subject and we are trying to make it even more complicated.

I am concerned about the statement you made that it all comes down to the dollar amount available for what we are trying to do.

We are trying to draw down and the only area without a lot of exposure is the defense account because it is a discretionary account, and it will take a big hit.

The industrial base can be dissipated and the training base bothers me. The kind of ammunition, stores and equipment that you need if you are going to have a down-sized force, a commander first takes care of his personnel sometimes at the expense of training.

Do you have the kind of supply-and-support base to maintain a real adequate training base?

General HOLMES. Yes, sir. Training is job one in the Army. General Sullivan has emphasized that a trained and ready force is the most important thing.

Mr. SKEEN. If you have a small force, it has to be well trained?

General HOLMES. Yes, sir. In the ammunition area last year, General Sullivan commissioned a blue ribbon study to look at ammunition training requirements.

Out of this came a new methodology establishing specific requirements that are non-discretionary for division commanders.

Their soldiers have to fire X number of rounds. No longer can he trade off training ammunition for a child care center. He is required to have his soldiers do certain levels of training on certain weapons. Our budget request reflects buys to meet those training ammunition requirements.

Mr. SKEEN. Your industrial base can support it?

General HOLMES. Yes, sir.

Mr. SKEEN. ———. Differentiate between the two.

General HOLMES. ——— and then after the conflict resolution, we have replenishment where we are required to put back into the inventory ammunition that was used during the conflict.

Mr. SKEEN. That is what one of the considerations for the industrial base will be?

General HOLMES. That is what we have designed the industrial base to do.

Mr. SKEEN. Thank you, Mr. Chairman.

Mr. DICKS. Mr. McDade?

EXPLOSIVE MANUFACTURING FACILITIES

Mr. McDADE. Thank you.

On the industrial base question, you have unique assets that do explosive work for you. They are funded in this budget.

General HOLMES. Yes, sir; the two explosive plants.

Mr. McDADE. What is the amount of funding in the budget for those ammunition plants?

General HOLMES. I don't know that specifically, sir. I will have to get that for you.

[The information follows:]

Explosive type work is done at two facilities, Holston Army Ammunition Plant (AAP) and Radford Army Ammunition Plant. The Fiscal Year 1994 Budget Estimate submitted April 1993 would yield approximately \$42.3 million for Holston AAP and \$28.8 million for Radford AAP.

Mr. McDADE. Is it a couple hundred million? Is it—do you have a range for it?

General HOLMES. For the production base?

Mr. McDADE. I am asking you—you have unique assets where you do explosives work and you have X amount in the budget for those plants for fiscal year 1994. I am asking how much X is?

General HOLMES. I don't know the answer to that question.

Mr. McDADE. Do you have it in manyears?

General HOLMES. I don't have that information with me. I can provide that.

[The information follows:]

By mid Fiscal Year 1994, it is estimated that Holston and Radford Army Ammunition Plant will have a combined plant population of approximately 2,500.

Mr. McDADE. Do you have a range of—

General HOLMES. At the two explosive plants, there are probably 1,700 and probably between 3,000 and 4,000 manyears of efforts.

Mr. McDADE. In fiscal year 1994?

General HOLMES. Yes, sir.

Mr. McDADE. Those plants are operating because you are buying some tank ammunition and some other ammunition that requires explosives. But what are you going to do with those plants in the event that you have no requirement under this new policy to buy bullets any more?

You are pretty much at that point now where you are out of the artillery base. What will you do with those plants?

General HOLMES. We have a continuing requirement for training.

Mr. McDADE. Put a number behind that for me.

General HOLMES. A rule of thumb is a billion dollars a year for training ammunition. This year we are requesting about \$280 million in the budget plus we are drawing down \$500 million from the war reserve to support training, so that is \$800 million, but on the average, historically training has been about a billion dollars.

With the reduced force, it may be a bit lower than that. At a minimum, we are going to have that continuing requirement to meet for training and Radford and Holston will be used to support the training requirement.

Mr. McDADE. Based on a reduced number, it is your judgment that you will be able to sustain both plants?

General HOLMES. Yes, sir. In our planning, those are two that remain in the production phase.

Mr. McDADE. And the pillar that supports you is your training requirement, which you estimate to be a billion dollars in the next year?

General HOLMES. Yes, sir.

Mr. McDADE. Thank you, General.

Thank you, Mr. Chairman.

CONVENTIONAL AMMUNITION WORKING CAPITAL FUND

Mr. DICKS. On October 1, 1981, the Conventional Ammunition Working Capital Fund was established to improve and simplify the ammunition procurement process, reduce paperwork, and reduce ammunition costs. CAWCF is a revolving fund administered by the Army as the single manager for conventional ammunition.

Last November, the DOD Inspector General found that defective standard pricing in the CAWCF resulted in an estimated saving of

\$105 million in fiscal year 1994. Where are these savings reflected in your budget?

General HOLMES. Well, sir, we didn't really agree with the DOD IG and the methodology they employed. The charter for the CAWCF specified that you would have a fixed standard price for ammunition for all the services and that that fixed standard price would be established initially and then revised before the budget execution year began.

Subsequent to the charter being approved, we received a DMRD from the Office of the Secretary of Defense that said once the initial price is established, you can't change it any more.

The DOD IG report did not accept that directive and their analysis was based on only what the charter said unmodified by the subsequent direction we had received from the Office of the Secretary of Defense.

So from the Army perspective, we didn't agree with that finding by the DOD IG and that \$105 million savings is not reflected in the budget.

Mr. DICKS. The DOD IG report found that the single manager "did not consistently develop standard prices that accurately estimated actual costs, as required by the charter. As a result, costs were not allocated fairly among customers."

What actions has the Army taken since last November to improve the standard price development process or does the subsequent guidance received from DOD negate the necessity of doing that?

General HOLMES. No, sir. We agree that there were some areas in which we could have improved the way pricing was done. Since the DOD IG, there have been any number of improvements in the pricing process done by the single managers.

Mr. DICKS. Would you elaborate on those for the record, please. [The information follows:]

Pricing policies and procedures for the Conventional Ammunition Working Capital Fund (CAWCF) are continually being reviewed and improved to provide more accurate estimates in a more timely manner. The new CAWCF Charter, signed by the Office of the Secretary of Defense (OSD) 26 March 1993, formally establishes the fixed standard price policy to replace the previous standard/non-standard prices. This means Department of Defense customers will be charged the price published in the Price List regardless of actual costs incurred. This provides the customers with stable prices for budget development and program execution. Any gains or losses to the CAWCF are recouped through a surcharge applied to future year prices. This policy does not apply to Foreign Military Sales or to OSD Low Rate Initial Production items procured through the CAWCF. These cases will be handled on an actual cost basis.

A document entitled Fixed Standard Price Procedures for the CAWCF has been prepared and is currently awaiting formal signature. It defines the broad procedures, standards and time frames for setting and adjusting fixed standard prices. This publication will provide customers and independent auditors with a common base for understanding how prices are set.

Mr. DICKS. Until recently, the CAWCF Charter allowed a price charged to a customer to change if actual prices varied significantly from the standard prices. Why was this flexibility dropped in recent revisions to the charter?

General HOLMES. This was accomplished because prior to that some of the services had complained that as prices were changed, the loss or savings would be passed on to the services. They wanted

to stabilize the price so all the services in conjunction with the Office of the Secretary of Defense agreed that we would establish a stabilized fixed-price process which is reflected in the new charter.

Mr. DICKS. We have been told by the Air Force that \$37 million in contract savings from a fiscal year 1991 procurement of the combined effects munition were retained in the CAWCF and not returned to the Air Force. Why was a price adjustment not made in this circumstance when the charter at the time allowed for such an adjustment?

General HOLMES. There were three elements involved in that. The Army had a tank round. The Marines had a mortar round, and the Air Force had the CEM round, all of which we requested to be repriced.

The decision was made in OSD that the standard prices were set, that any pluses or minuses would be reflected in the next year's surcharge in the CAWCF and it would not come back to the service.

Mr. DICKS. The CAWCF got flush?

General HOLMES. Yes, sir.

Mr. DICKS. In this case.

Mr. Lewis?

TRAINING AMMUNITION

Mr. Lewis. The National Training Center for the Army is in my district, and is very important to me. You indicated that training and retraining is fundamental to keeping the Army where we want it to be and your statement states that 53 percent of the ammunition end item procurement is requested in support of annual training.

Can you tell me about the adequacy of those supplies? What is taking place at Fort Irwin in connection with your need for funding and procurement of ammunition, et cetera?

General HOLMES. As I indicated, this budget request adequately supports the Army need for training in fiscal year 1994 with a few minor exceptions principally in the area of small arms and mainly in the 50-caliber arena. But the training that goes on at NTC with tanks, Bradleys and helicopters, all is fully supported in this budget. Of that, \$12 million of this is specifically for tank ammunition for the NTC and that requirement is fully funded in the budget.

CONVENTIONAL AMMUNITION WORKING CAPITAL FUND

Mr. DICKS. Does not the fact that there has been a negative surcharge for seven of the last ten years mean that standard prices are consistently higher than actual prices?

General HOLMES. It would certainly indicate that, sir, but standard prices are fixed a considerable amount of time in advance of when the actual obligation is incurred.

Mr. DICKS. How many months is it between the time a standard price is set and the time that funds are obligated for procurement of ammunition items?

General HOLMES. Usually 18 months. The price would be set in August of this year, say, for the—

Mr. DICKS. How can you have a realistic price then if it is 18 months?

General HOLMES. Information is derived a couple of different ways. If it is a repurchase we use the best price from an existing contract, apply with the appropriate inflation indices and add in the surcharges that are necessary to that particular round to come up with a standard fixed price.

Mr. DICKS. Ammunition procurement funds are considered obligated when they are transferred into the CAWCF. However, ammunition items are not actually procured until funds are transferred out of CAWCF to buy them. Since CAWCF funds have no expiration date, hasn't CAWCF made ammunition procurement accounts "no year" appropriations?

General HOLMES. In essence that is true, sir.

Mr. DICKS. Other than the DOD IG report, what recent studies or audits have been made of the CAWCF to determine whether it is accomplishing its intended goals?

General HOLMES. The DOD IG report is the most recent. There have been numerous reports by the Army Audit Agency, by the GAO, and OSD does an annual review of the CAWCF and issues a program budget decision each year. So there is an annual review at least by OSD.

Mr. DICKS. If the CAWCF were to be abolished by Congress in fiscal year 1994, what budget adjustments would be necessary to carry out this action?

General HOLMES. There would be an increase in each of the service's procurement request. This year we have taken \$187 million decrement in the CAWCF so we would have to make that up. The Army share would be \$118 million; the Navy 30, Marine Corps 15, the Air Force 18—

Mr. DICKS. Provide these details for the record, if you would.

[The information follows:]

The fiscal year (FY) 1994 prices would have to be revised to reflect actual costs and eliminate the negative surcharge of minus \$187.5 million to all customers of the Conventional Ammunition Working Capital Fund (CAWCF). Service breakout is as follows:

In millions of dollars

| | <i>Amount</i> |
|---|---------------|
| Army..... | + \$118.1 |
| Navy..... | +30.0 |
| Marine Corps..... | +15.0 |
| Air Force..... | +18.0 |
| Other (Special Operations Command)..... | +6.4 |
| Total | +187.5 |

If procurement of ammunition were done at actual cost, all services would be required to either provide additional funds or reduce quantities if the proper amount of the funding is not available.

If we didn't have a CAWCF to support the Single Manager for Conventional Ammunition mission, we would revert to methods of budgeting and execution used for all other procurement accounts.

Additional funding may be needed when a decision is made on the type of financial system to be used in place of the CAWCF. If in FY94 the CAWCF is abolished, time would be required to set up an acceptable cost accounting system. Considering the current and future reductions to the Service programs, the need to consolidate customer orders is imperative, regardless of the finance and accounting system to be used.

Production and delivery of all programs currently in the CAWCF will have to be completed. This will require maintenance of dual accounting systems until the CAWCF orders are closed out. This process could take several years. Residual components or material would have to be decapitalized from the CAWCF and accounted for through the replacement accounting system.

Mr. DICKS. Mr. Lewis?

SEARCH AND DESTROY ARMOR (SADARM)

Mr. LEWIS. The budget includes \$77.7 million for the initial procurement of the 155-millimeter SADARM artillery projectile. Last year, initial procurement funding was denied by Congress because of technical problems and program delays. What is the current status of this program?

General HOLMES. The SADARM program is progressing well. Most of last year's problems have been corrected. We are nearing completion of the EMD phase and will begin to conduct the scored phase of technical testing in May of this year. The results leading up to this have been very encouraging.

We will conduct the end-to-end firings-versions for the 155 artillery and MLRS rocket system. We will start MLRS technical testing in July of 1993 and will continue until December of 1993.

The Milestone IIIA decision for whether to go into production is scheduled for September 1993 and we are planning to go into low rate production in fiscal year 1994.

Mr. LEWIS. You have \$41 million in the 1994 research and development budget for the SADARM. Is there remaining research beyond that that needs to be done?

General HOLMES. The \$41 million this year completes the R&D phase on the MLRS variant and initiates preliminary investigations into pre-planned product improvements.

Mr. LEWIS. Are any SADARM improvements contemplated or budgeted?

General HOLMES. We are investigating producibility improvements and will initiate preliminary investigations into possible out-year product improvements. Funding for such improvements is currently not in the program.

Mr. LEWIS. Being a little more specific, what are the milestones for remaining SADARM testing and what are the pass/fail thresholds for these tests?

General HOLMES. The program unit cost threshold is \$35,650 for the 155mm projectile and \$163,300 for the MLRS rocket over the entire acquisition period. The current estimates are \$32,000 and \$146,000 respectively, which are well below the threshold.

The total procurement costs for MLRS SADARM in base year 1989 constant dollars is estimated to be 8 percent above the program acquisition baseline compared to a 5 percent threshold.

This was caused by elimination of the basic MLRS rocket production in fiscal year 1993 and the halving of the rocket production base in the outyears.

Mr. LEWIS. What are the results of SADARM tests conducted in the past compared to pass/fail thresholds?

General HOLMES. Thus far, SADARM continues to meet or exceed our performance expectations in terms of hits on targets.

The system reliability is as expected for this stage of the program but will have to improve a bit before we enter operational testing.

Mr. LEWIS. Elaborate on that for the record.

[The information follows:]

Sense And Destroy Armor (SADARM) has exit criteria associated with transition to low rate production and a reliability threshold to meet to enter operational testing. To date, both the 155mm and the Multiple Launch Rocket System variants have met or exceeded their performance objectives. Both SADARM variants have demonstrated defeat of the required amount of armor, exceeded their thresholds and objectives for effectiveness, and met their firing range objectives. Still to be demonstrated are the overall hit performance of the 155mm variant in technical testing prior to entry into low rate production and the desired system reliability of 72% prior to entering operational testing. We are prepared to conduct the scored phase of technical testing in June of this year.

Mr. LEWIS. For the record, provide the complete procurement profile for both artillery and MLRS versions of SADARM, showing funding and quantities.

[The information follows:]

| Fiscal year | 155 MM | | Multiple Launch Rocket System | |
|------------------|--------|--------------|-------------------------------|--------------|
| | Qty | \$(Millions) | Qty | \$(Millions) |
| 1994..... | 1,213 | 77.7 | | |
| 1995..... | 1,486 | 75.4 | 252 | 82.2 |
| 1996..... | 1,193 | 48.7 | 426 | 104.2 |
| 1997..... | 1,666 | 52.4 | 522 | 106.2 |
| 1998..... | 1,963 | 53.9 | 810 | 126.7 |
| 1999..... | 2,581 | 65.2 | 1,038 | 149.7 |
| To complete..... | 28,916 | 551.4 | 20,664 | 2,167.9 |
| Total..... | 39,018 | 924.7 | 23,712 | 2,736.9 |

Mr. LEWIS. What is the acquisition strategy for SADARM?

Has it been approved?

General HOLMES Yes, sir. It has been approved.

Mr. LEWIS. Do you want to describe that for the record?

General HOLMES. It was approved 7 April. It provides for a two-year, low-rate production in fiscal year 1994 and fiscal year 1995 for the 155mm projectile and one year of low rate production for the MLRS variant in fiscal year 1995.

The two-year low rate production is necessary so we will have full production data prior to entering full rate production in fiscal year 1996.

Mr. LEWIS. Does that reflect the expenditure of the \$77.7 million included in the budget?

General HOLMES. \$77.7 million will purchase 1,213 155mm SADARM projectiles.

Mr. LEWIS. What unit cost goals and thresholds does the Army have for SADARM contractually and otherwise? What is the plan for achieving them we are asking you to be specific about the assumptions that underlie those goals and thresholds.

General Holmes. Could I provide that for the record?

Mr. LEWIS. Yes.

[The information follows:]

The Design To Unit Production Cost (DTUPC) goals were originally established in the Engineering and Manufacturing Development contract. These goals are for the

contractor to strive to design an item within a preset monetary limitation. The current goal of \$12,335 for the 155mm projectiles (which includes the carrier and two submunitions) and \$5,195 for one Multiple Launch Rocket System (MLRS) submunition is based upon an 80% learning curve on the first 9,000 submunitions and an 85% learning curve on the balance of the production quantities (in total, 39,018 155mm projectiles and 142,708 MLRS submunitions-MLRS includes test quantities). It also assumes an 80% commonality between the 155mm and the MLRS submunitions and that both systems will be concurrently produced. The MLRS SADARM contract with Loral Vought Systems has a DTUPC award fee feature for achieving their goal on the MLRS SADARM carrier. There are no DTUPC thresholds.

The Program Acquisition Unit Cost (PAUC) thresholds are \$35,650 for the 155mm projectile and \$163,300 for the MLRS rocket over the entire acquisition period (fiscal years (FY) 1986 through 2006). The current estimates are \$30,000 and \$142,000 respectively which are well below these thresholds. In 1991, as a result of the Post-Conventional Forces in Europe Study, acquisition objectives were greatly reduced causing a PAUC breach. The current goals are the result of reduced quantities.

The Current Procurement Unit Cost (CPUC) threshold will be \$73,661 in FY94 for the 155mm SADARM for the 1,213 rounds to be procured.

Mr. LEWIS. Last year, we were told that the Army intended to procure 39,018 155-millimeter artillery projectiles for \$969.8 million and 23,712 MLRS rockets for \$2,758.1 million. Explain any changes to these figures in your current plans.

General HOLMES. The overall quantities remain at 39,018 for 155mm SADARMS projectiles and 23,712 for the MLRS rockets.

Mr. LEWIS. The dollar figures are the same?

General HOLMES. Program costs have decreased slightly due to a reduction in estimated inflation rates.

Mr. DICKS. Mr. Young? Mr. McDade, any further questions?

Mr. McDADE. No further questions.

Mr. DICKS. Thank you, General. You did a good job of explaining the reduced budget and we appreciate your testimony. Please answer the committee questions for the record.

The Committee will adjourn until 1:30 this afternoon.

[CLERK'S NOTE.—Questions submitted by Mr. Dixon and the answers thereto follow:]

DEEP DRAWN CARTRIDGE CASES

Question. The Army's single manager for ammunition has historically procured deep drawn cartridge cases at a rate of approximately 30,000 per month. What are the expected long-term average requirements for ammunition items that utilize deep drawn cartridge cases, such as 105mm tank projectiles and the Navy's five-inch and 76mm gun ammunition?

Answer. The long term requirements for deep drawn cartridge cases are expected to average less than 10,000 cases per month. The case requirements consist of the Navy's five-inch and 76mm programs for the next several years. There is no 105mm requirement in the near future.

Question. The Army invested \$55 million in single production source for manufacturing large caliber, deep drawn cartridge cases. What funds would be required to downsize this facility to be efficient for post cold war requirements?

Answer. At this time, it is not known what funds would be required to downsize the facility. Within the next several months, a team from the U.S. Armaments Munitions and Chemical Command will go to NI Industries in an effort to determine what changes and funds would be necessary to downsize the facility.

Question. The Army has extensive excess facilities for ammunition production in the industrial base. What costs are expected by the Army to dispose of or "excess" this equipment and what is the projected environmental cleanup costs.

Answer. In order for the Army to dispose of excess ammunition production facilities (equipment, buildings, and land), current estimates are that over \$2.2 billion would be required. Approximately \$1 billion of this amount is related to environmental cleanup.

Question. Has the Army created any incentive programs to encourage industry to obtain this excess equipment, particularly with respect to the utilization of this equipment for conversion to commercial production?

Answer. Yes, Congress enacted the Armament, Retooling and Manufacturing Support Initiative, which encourages the use of idle Government-Owned, Contractor-Operated Ammunition industrial base with other work, both commercial and Government. A portion of this legislation addresses the development of a plant equipment disposal plan. The Army is in process of developing this plan which will establish policies and procedures on disposition of excess equipment and its availability for purchase, sale, or other disposition. We anticipated this plan to be completed on or about July 30, 1993.

At contractor-owned, contractor-operated (COCO) facilities, the Army's ammunition acquisition strategy will continue to allow qualified producers to bid on this excess Government industrial equipment. We are also conducting disposal sales on-site to encourage the current contractor to take title to the equipment.

[CLERK'S NOTE.—End of questions submitted by Mr. Dixon. Questions submitted for the record and the answers thereto follow:]

AMMUNITION PRODUCTION BASE

Question. Given the downsizing of the force structure and changes in Defense Planning Guidance, what is the Army now doing to restructure its ammunition base to reflect the "new world order"?

Answer. The Army has taken action to identify the minimum resourcing level necessary to support our projected war reserve, and reduced needs for war reserve, training and replenishment requirements for ammunition. The objective is to structure a base which supports those requirements. As a result, a competitive realignment of producers will occur. Those producers who remain active will possess the necessary critical skills, equipments and facilities required to the overall strategy of a smaller, more flexible, responsive production base. In addition, the Army is currently reviewing and evaluating the need for further retention of government equipment which had previously been laid away for mobilization.

Question. The Army is currently preparing a production base plan to be submitted to Congress in August. What are the important features of that plan?

Answer. The plan will include the latest status and policies regarding issues pertaining to both government and the commercial side of the ammunition industrial base. It will identify facilities with government-owned plant equipment that will be retained or excessed. It will discuss facilities contracting and reutilization of

the base. It will also discuss group technology centers, caretaker status, and other issues regarding the ammunition industrial base.

Question. What government-owned ammunition production facilities will be closed in the next two years? What will happen to these plants?

Answer. The following plants will cease Army workload production in the next two years:

Kansas Army Ammunition Plant—September 1993.

Longhorn Army Ammunition Plant—September 1993.

Louisiana Army Ammunition Plant—October 1994.

Scranton Army Ammunition Plant—October 1994.

These plants will be provided an opportunity to obtain a facility contract which may be used to attract Government (defense and non-defense), as well as commercial work. The Armaments Retooling and Manufacturing Support initiative will provide the needed mechanism and incentives to better utilize the ammunition industrial base. Equipment not required to meet requirements (projected wartime expenditures and training and replenishment quantities) or, by the facility contractor's third party contracting, will be redistributed elsewhere in the base or excessed.

Question. What government-owned ammunition plants will remain open and in production for the foreseeable future?

Answer. The following facilities are anticipated to remain open and in production:

Holston Army Ammunition Plant.

Radford Army Ammunition Plant.

Iowa Army Ammunition Plant.

Lake City Army Ammunition Plant.

Milan Army Ammunition Plant.

Long Star Army Ammunition Plant.

Crane Army Ammunition Plant.

McAlester Army Ammunition Plant.

Hawthorne Army Ammunition Plant (Depot Operations).

Further reduction to the number of active ammunition plants may be required depending on future budget limitations.

Question. How will the new Army Plan address contractor-owned ammunition production facilities?

Answer. The approach is to maintain the minimum essential industrial base, both government and private industry. The Army wants to preserve the critical skills, capabilities, and processes within both the government and commercial facilities, necessary to meet future requirements. Analyses of the ammunition needs of the military services were performed to determine the critical processes and unique or critical skills that are essential to the manufacturing of needed items.

Question. Please address the new "caretaker" status that will be applied to all or portions of ammunition plants. How does this differ from "layaway" or other designations?

Answer. "Layaway" is generally viewed as the process of decontamination, cleaning, rehabilitation/repair, preservation and establishing a storage environment that will protect a manufacturing process for future production. "Caretaker" is essentially "decommissioning." Under caretaker status, absolutely the minimum

effort is expended for decontamination, deactivation of buildings, severing utilities, and "boarding up" the area to prevent injury.

Question. Roughly what portion of the current government-owned base will fit into the "caretaker" category?

Answer. Approximately 40 percent of the government-owned complex could come under caretaker status. This could change depending on what equipment a contractor may want under a facilities contracting agreement.

Question. What long term plans does the Army have for facilities in the "caretaker" status?

Answer. The long term goal would be to dispose of the equipment, buildings and land.

Question. What reductions in ammunition plant maintenance costs are expected to result from the implementation of the new Army production base plan? Where are these reflected in your budget?

Answer. A reduction of approximately 30% in the maintenance of inactive facilities costs is anticipated once the plan is fully implemented. These savings will be reflected in upcoming Future Year Defense Plans.

Question. How are replenishment and reconstitution requirements for ammunition addressed in the Army production base plan?

Answer. The Ammunition Production Base Plan will contain a section on requirements. It will summarize the changes in policy based on the latest Defense Planning Guidance, and explain the replenishment requirement analysis and process. It will show the trends of requirements compared with industrial base capability. Reconstitution requirements are not addressed. Based on the projected extended warning and preparation period, the planning assumption is that there will be sufficient time to construct needed facilities, incorporate the latest technology, and produce the most technically advanced munitions possible.

Question. What will the plan do with respect to retention of skilled manpower, both for ammunition production and development of new ammunition technology?

Answer. Within the available resources and limited production hardware buys every effort is being made to retain critical skills. Group Technology Centers and critical producers usually identify the core competencies required to manufacture ammunition. Critical skills studies have been accomplished and, in those instances where a single source producer for an ammunition commodity is becoming inactive, every effort will be made to retain the necessary critical skills. Key production personnel are being reassigned to other functions to retain the necessary knowledge, as well as using new procedures, such as videotaping of production operations.

Question. The Norris facility in Los Angeles is contractor owned and operated. It has both unique capabilities—Multiple Launch Rocket System (MLRS) rocket skins and some capabilities found elsewhere in the production base. What is the future of the Norris facility under your plan?

Answer. The large caliber metal parts capability at NI Industries is considered excess as there is sufficient capacity in the existing

government-owned, contractor-operated complex to meet current requirements and replenishment quantities. It is anticipated that some capability will be retained for cartridge cases and MLRS rocket skins.

CONVENTIONAL AMMUNITION WORKING CAPITAL FUND

Question. The DoD IG report found that the single manager "did not consistently develop standard prices that accurately estimated actual costs, as required by the Charter. As a result, costs were not allocated fairly among customers." What actions has the Army taken since last November to improve the standard price development process?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. The approved cash balance for the Conventional Ammunition Working Capital Fund (CAWCF) is \$350 million. The actual monthly balance for this fiscal year has varied between \$400 million and \$604 million. Is this not further evidence of fundamental problems in the standard price setting process?

Answer. Cash balance is not an indicator or pricing procedures. It is a function of the advance billing process. Since the CAWCF has no cash corpus, the fund must advance bill customers in order to obtain sufficient cash to pay bills such as progress payments to producers. Should bills not be received as forecasted, the CAWCF cash balance will be temporarily higher than the target cash balance of \$350 million.

Question. A new Charter was recently approved for CAWCF. What changes were made from the previous charter and what was the justification for each?

Answer. The major change to the Charter is the formal introduction of the fixed standard price policy to replace the previous standard/nonstandard prices. A second change is no year funding for CAWCF Department of Defense customer orders. Once a customer order is placed in the CAWCF, it is good until completion of an order, rather than ending with the appropriation obligations authority. The revised charter also allows the reprourement of components where a contractor has notified the government of possible Chapter 7 or 11 actions. These changes were necessitated due to intervening guidance from the Office of the Secretary of Defense in various Program Budget Decisions and Defense Management Report Decisions. In addition, a section was added delineating management responsibilities for the CAWCF to clarify the roles of the organizations involved.

Question. If the CAWCF were to be abolished in fiscal year 1994, what budget adjustments would be necessary to carry out this action?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

ARMAMENT RETOOLING AND MANUFACTURING SUPPORT (ARMS)

Question. What has been done with respect to the Public-Private Task Force (PPTF) and what are the milestones for this activity?

Answer. The Army has prepared all the necessary documentation to establish the ARMS Initiative PPTF in compliance with the Federal Advisory Committee Act. The PPTF packet has been approved by the Department of the Army and forwarded to the Department of the Defense for final internal Defense approval. The next series of milestones are: (1) gain the Office of Management and Budget final approval; (2) publish an announcement in the Federal Register of the Army's intent to convene a meeting of the ARMS PPTF approximately 30 days later; and (3) convene subsequent ARMS PPTF meetings providing a minimum of two weeks notice to the public. We anticipate approximately six meetings annually and to complete PPTF work in 12 to 18 months.

Question. For the record, list the members and affiliations of the Task Force members.

Answer. Final approval for the ARMS PPTF has not given by the Office of Management and Budget. Hence, the composition of the task force is not known at this time, since an announcement will be made in the Federal Register upon approval. After this announcement, membership applications may be received from both the public and private sectors. When ARMS PPTF approval is made and members are selected by the Army, an Army Information Paper will be forwarded.

Question. What other activities have been carried out under the ARMS Initiative to date and what are your plans for the remainder of the year?

Answer. The Army established a management structure for ARMS Initiative implementation consisting of a task force and working group. The task force reports directly to the Secretary of the Army and is responsible for the overall implementation of the ARMS Initiative. The Army Materiel Command through its subordinate Armament Munitions and Chemical Command has formed the working group responsible for program execution. Other key events completed to date are: submitted the 1st Quarterly Report to Congress; published an ARMS brochure; briefed key Congressional, Secretary of Defense, and Army staff elements; initiated action to establish public-private task force (PPTF) complying with Federal Advisory Committee Act; signed two facility contracts for prototype ARMS Initiative plants; established accounting and internal controls; and conducted arms initiative "fact finding" tour at Kansas, Iowa and Indiana Army Ammunition Plants. Key events planned for the balance of the fiscal year are: preparing and submitting of subsequent quarterly Reports to Congress; conducting the market survey; convening the PPTF; preparing and submitting the ARMS Initiative Implementation Plan; and requesting the release of the remaining \$140 million from Congress.

Question. What legislative initiatives do you expect to be proposed to further the ARMS Initiative?

Answer. The Army anticipates there will be a need for legislative changes to specific statute and public law. Particularly in the areas of existing laws governing loan ceiling limitations for the Small Business Administration; dollar guarantee and other limitations (e.g. nonprofit versus profit) on community planning grants administered by Department of Commerce; and if we are unable to get regulatory relief from certain provisions of the Federal Acquisition

and Defense Federal Acquisition Regulations such as, relief to permit the rent free use of government facilities for other than government work; relief to permit greater than twenty-five percent of a government facility to be contracted out for commercial use; and relief to permit the government to enter into longer term facility contracts (ten, fifteen years or more).

Question. When will they be proposed to Congress?

Answer. The Army is in the process of identifying required changes to legislation. Once identified, they will be submitted to Congress.

Question. What obligations have been incurred to date under the ARMS Initiative and for what purposes?

Answer. To date, there have been no obligations of funds.

Question. What obligations do you expect to incur during the remainder of the fiscal year (FY) and for what purposes?

Answer. The Army's forecasted obligations for the remainder of FY93 are:

In millions of dollars

| Element of Cost: | FY93 |
|---|-------------|
| Financial Incentives (e.g. building alterations; equipment consolidation, modification, and/or replacement; marketing)..... | \$28.1 |
| Environmental Baseline Studies..... | 6.5 |
| Program Administrative Support..... | 0.4 |
| Loan Guarantee Allocation..... | 25.0 |
| FY 93 Total..... | 60.0 |

Question. What obligations do you expect to incur in FY94 and for what purposes?

Answer. The Army's forecasted obligations for FY 94 are:

In millions of dollars

| Element of Cost: | FY94 |
|---|--------------|
| Financial Incentives (e.g. building alterations; equipment consolidation, modification, and/or replacement; marketing)..... | \$55.6 |
| Environmental Baseline Studies..... | 23.5 |
| Program Administrative Support..... | 2.6 |
| Loan Guarantee Allocation..... | 58.3 |
| FY 94 Total..... | 140.0 |

Question. The use of government-owned equipment and facilities for commercial production activities should reduce the funding requirements for facility and equipment layaway. How is this reflected in your FY94 budget?

Answer. No dollar savings have been yet identified for FY94, but meaningful savings in the production base support account, specifically in terms of maintenance of inactive facilities and layaway of industrial facilities, should be realized in FY95. The amount of savings will increase directly in proportion to the number of successful commercial activities the facility contractor is able to bring on to the ammunition facility.

TRAINING AMMUNITION

Question. For the second year in a row, war reserve ammunition stocks worth about \$500 million are being drawn down in order to support peacetime training. How serious a problem is this?

Answer. Each year the Army draws down a portion of its war reserve stocks to support training for selected ammunition items. This drawdown is intensively managed so as not to adversely impact the war reserve posture of affected items. Procurements are programmed in the budget once war reserve levels warrant additional investment.

Question. Can you cite some specific war reserve days of supply reductions that will occur as a result of these drawdowns?

Answer. The drawdown of assets to support peacetime training will result in a reduction in the percent of fill for war reserve stocks for the following items by the end of the fiscal year 1994 funding delivery period. ———.

Question. Last year you said that "funding shortfalls in the fiscal year (FY) 1993 budget may result in a constrained training level for selected items beginning in FY94". To what extent do you expect this actually to occur? Please be specific.

Answer. We do not expect this to occur; peacetime training requirements for ammunition items should be fully supported in FY94.

Question. What training constraints do you expect to occur in 1995 as a result of the 1994 budget? Please be specific.

Answer. Based on projected force structure reductions, we will continue to support training at 100 percent in FY95 with the possible exception of small arms.

Question. What increases in your budget, if any, would eliminate 1995 training constraints?

Answer. Based on the projected force structure, an increase of \$13.1 million for small arms ammunition would be required to fully support 1995 training needs.

Question. What changes are being made in the way that training ammunition requirements are calculated?

Answer. The Army recently revised its weapons training strategy, known as the Standards in Training Commission. These adjustments realistically support high pay-off training strategies such as increased reliance on sub-caliber firing and more efficient training practices which permit fewer target engagements producing the required weapon proficiency.

Question. Are these changes realistic? Do you support them professionally?

Answer. Yes, the changes are realistic. I support these efforts because these training strategies are the result of detailed analysis and professional judgment by the Army's experienced training community.

Question. What will be the impact of these changes on annual training ammunition funding requirements?

Answer. Funding requirements for selected high cost items, such as tank training rounds, were reduced. There were some increases in funding requirements for low cost items such as small arms ammunition.

SENSE AND DESTROY ARMOR (SADARM)

Question. The research and development budget contains \$41 million for Sense and Destroy Armor (SADARM) in fiscal year 1994. What remaining research needs to be done for SADARM?

Answer. Of the \$41.1 million, \$37.3 million is to build and test Multiple Launch Rocket System (MLRS) SADARM and \$3.7 million is to complete the reliability growth and producibility aspects of the 155mm variant and initiate investigations into possible product improvements.

Question. Are any SADARM improvements contemplated and/or budgeted? If so, please explain.

Answer. As stated above, a small amount is budgeted to initiate investigations into pre-planned product improvements of the SADARM system (submunition, in particular). However, the only improvements being implemented in the current budget are those associated with reliability growth and producibility.

Question. What are the milestones for remaining SADARM testing and what are the pass/fail thresholds for these tests?

Answer. Technical Testing—155mm: to be completed not later than Jan 94; threshold is 19-29 target hits out of 72 submunitions fired. Technical Testing—MLRS: to be initiated not later than Jul 93; to be completed not later than Mar 94; threshold is target 7 hits out of 36 submunitions. Initial Operational Test and Evaluation—155mm: to be initiated not later than Jan 94; to be completed not later than Apr 94; to demonstrate a reliability of 72 percent or greater; the threshold of hits/kills to be finalized prior to the low rate production decision review. Initial Operational Test and Evaluation—MLRS: to be initiated not later than Apr 95; to be completed not later than May 95; threshold of hits/kills to be finalized prior to the low rate production decision review.

Question. What are the other Sense and Destroy Armor program milestones?

Answer. 155mm: Low Rate Production decision review—Sep 93; Low Rate Production contract award—Nov 93; Milestone III—Jun 95; Full Scale Production contract award—Oct 95; Initial Operational Capability—Sep 95. Multiple Launch Rocket System: Low Rate Production decision review—Dec 93; Low Rate Production contract award—Dec 94; Milestone III—Jun 95; Full Scale Production contract award—Dec 95; Initial Operational Capability—Feb 97.

Question. What is the acquisition strategy for Sense And Destroy Armor (SADARM)? Has this strategy been approved?

Answer. The Acquisition Strategy Report for production was approved by the Under Secretary of Defense (Acquisition) on April 7, 1993. It provides for a two year low rate production (fiscal years (FY) 1994 and 1995) for the 155mm variant and a one year low rate production in FY95 for the Multiple Launch Rocket System (MLRS) variant. The overall two year low rate production effort will provide sufficient production data in preparation for full rate production in FY96.

Question. What other SADARM procurement funding has been appropriated to date and for what purpose? What other SADARM procurement funding is included in the FY94 budget?

Answer. To date, no procurement funding has been appropriated for the SADARM program. Other than the 155mm procurement (Procurement, Ammunition Army), no other SADARM procurement funding is included in the FY94 budget.

Question. Last year, we were told that the Army intended to procure 39,018 155mm artillery projectiles for \$969.8 million and 23,712 MLRS rockets for \$2758.1 million. Explain any changes to these figures in your current plans.

Answer. The Army still intends to procure the same quantities of both 155mm projectiles and MLRS rockets. The program procurement costs for both the 155mm projectiles and the MLRS rockets have decreased slightly due to a reduction in the estimated inflation rates.

Question. What are the results of SADARM tests conducted in the past compared to pass/fail thresholds?

For the record, provide the complete procurement profile for both artillery and MLRS versions of SADARM, showing funding and quantities.

What specifically will be procured with the \$77.7 million included in the 1994 procurement budget?

What unit cost goals or thresholds does the Army have for SADARM (contractually or otherwise) and what is the plan for achieving them? Please be specific about the assumptions that underlie these goals/thresholds.

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

120MM MORTAR AMMUNITION

Question. The budget includes \$4.8 million for procurement of 120mm mortar ammunition. What is the status of this program?

Answer. Martin Marietta Ordnance Systems, Inc. (MMOS) is the system contractor. Our 1988 fixed price development contract options have been exercised using the funds provided by the Congress in fiscal year (FY) 1991.

Program delays have caused the first unit equipped (FUE) date to slip by nine months to July 1994. MMOS failed their first article test (FAT) in early March 1993. They are scheduled to resubmit FAT samples by the end of April 1993. We should have results on the second sample submission by mid-May 1993.

Contractor delays (August 1992 to March 1993) in submitting an acceptable proposal for the XM929 smoke cartridge engineering change may have precluded the possibility of making the July 1994 FUE with the smoke cartridge.

Due to program delays, no ammunition asset procurements are scheduled for fiscal years 1993 and 1994.

Question. What procurement strategy is being proposed beyond the procurements which are already on contract? Has this strategy been approved?

Answer. The Army is currently reviewing a Justification and Approval (J&A) requesting the MMOS be awarded a system contract for the FY92 program. The proposal is for an "... other than full-and-open competition" award. It has not been approved.

Question. The 1993 appropriation bill prohibited competitive procurement of this ammunition before successful completion of first article tests and the availability of a level III technical data package. What are the milestones for achieving these requirements?

Answer. MMOS failed their FAT in early March 1993. They are scheduled to resubmit FAT samples by the end of April 1993. We should have results on the second sample submission by mid-May 1993.

Level III technical data packages are available for all four 120mm mortar ammunition cartridges: high explosive with point detonating fuze (M933), high explosive with multi-option fuze (M934), illumination (XM930), and smoke (XM929).

Question. What plan does the Army have with respect to current subvendors in future procurement contracts for 120mm ammunition?

Answer. None. Subvendors for 120mm mortar ammunition are established by the prime contractor.

AMMUNITION DEMILITARIZATION

Question. The Army's budget includes \$53.3 million for demilitarization (demil) of conventional ammunition. For the first time, demil funding is also included in the budgets of the other services. What amounts are included in the budgets of the other services for ammunition demil?

Answer. For fiscal year (FY) 1994, the other services budgets for demil are:

In millions of dollars

| Services: | Amount |
|------------|--------|
| Navy | \$6.7 |
| USMC | 7.2 |
| USAF | .2 |
| Total..... | 14.1 |

Question. Why is ammunition demil funding being split among the services?

Answer. Demil costs are too large for one service to handle. Sharing the funding burden should make the other services more accountable for managing their demil generations.

Question. Did the Army propose, or agree with this recommendation?

Answer. This was an Office of the Secretary of Defense (OSD) decision and the Army did not disagree with the concept of the services funding for their new demil generations.

Question. Is there any guarantee that the other services will use the funding for the purpose intended rather than reprogram it?

Answer. No. The only guarantee would be through a specific OSD Program Budget Decision on an annual basis.

Question. What are the advantages and disadvantages of putting ammunition demil in a Defense Agency or other OSD funding line?

Answer. The four services agreed unanimously that the current funding mechanism is working to their satisfaction. There are no perceived advantages to changing this procedure. Disadvantages

would be in terms of managerial layering, or possibly allowing the demil line to be a bill payer for other purposes.

Question. According to information provided to the committee, the backlog of ammunition demil, which has been at less than 200,000 short tons (s/t) since the 70's climbed to almost 400,000 s/t. Why?

Answer. Part of this increase was caused by high FY92 generations of 6,200 s/t. An addition 149,382 s/t increase to the demil inventory is attributable to components and non-standard items which were not previously listed (69,336 s/t), and weight table conversions (80,046 s/t). The latter adjustment is the result of a "bot-toms-up" correction of all weights for items listed. The system now in place will preclude this type of error in future entries. The present backlog is 344,793 s/t, as of the end of FY92.

Question. What impact, if any, does the current backlog of ammunition (ammo) demilitarization (demil) have on the Army's ammunition storage capability?

Answer. Quality indoor storage space in the continental U.S. is at a premium, particularly in view of increased retrograde of munitions from overseas areas and directed base closures. The present demil inventory occupies the equivalent of 2300 igloo storage magazines, which would consume all available ammo storage capacity at three of our wholesale depots. Demil stocks comprise more than 10 percent of the ammo stockpile. Current storage utilization projections reflect that the ammo storage base will be completely full prior to the end of fiscal year (FY) 1996. There is also an impact on readiness, since we do not have full flexibility to store go-to-war and other contingency ammunition stocks in position for optimum strategic and logistics advantage.

Question. How many short tons (s/t) of ammunition will be destroyed with funding provided in FY93 and proposed in FY94?

Answer. In FY93 we plan to dispose of 38,000 s/t of ammo, based on available funding. Based on an average cost of \$1,000 per ton for demil, we expect to eliminate 53,000 s/t in FY94.

Question. What do you currently estimate to be the backlog at the end of 1993, 1994 and 1995?

Answer. End FY93: 424,000 s/t; End FY94: 447,000 s/t; and End FY95: 432,000 s/t.

Question. The Army recently submitted a demil Master Plan. What are the highlights of that plan?

Answer. The demil Master Plan provides an overview of the demil process, a recap of installation capabilities and demil equipment, and a focus on reclamation and recovery. This is a living document, and will be updated annually.

Question. Is the FY94 budget a "fully funded" demil program as described in your master plan? If not, what are the deficiencies?

Answer. The FY94 program is fully funded for demil operations. However, the Research and Development program requirement for \$5 million is severely underfunded by more than \$4 million.

Question. The master plan calls for the preponderance of demil work to be performed at government-owned facilities where the ammo is now stored. How do you use the talents and resources of private industry for both development and operations under such a scheme?

Answer. Historically most demil has been accomplished at government-owned facilities, because the munitions were stored at these locations, and necessary equipment and expertise was also on hand. In order to increase our demil capability we will offer volumes of demil stock for disposal by private contractors, most of whom have experience in ammunition production or related work. Many of these contractors conduct research projects which are directly or indirectly applicable to demil programs.

Question. What research programs are currently underway to develop ways to increase the use of resource recovery and recycling? What efforts are planned for fiscal year (FY) 1994?

Answer. Programs under way:

1. Plasma Arc Furnace Technology
2. Supercritical Water Oxidation
3. Recycling of Red Phosphorous
4. High Pressure CO₂ Removal of Explosives
5. Improved Feed Rates for Incineration Programs

Planned for FY94:

1. Continuation of all above programs except Plasma Arc Technology
2. Recycle/reuse Research Department Explosive and High Melt Explosive
3. Single Based Propellant Recovery
4. Recycle/reuse of Smoke Pot Oils
5. Recycle/reuse of plastic-bonded explosives

Question. Is the FY94 research budget "fully funded"? If not, what additional resources are required and what efforts would they fund?

Answer. Only \$750,000 of the FY 94 demilitarization (demil) Research and Development budget is funded at present, leaving a balance of \$4,185,000 still unfunded. Full fundings for FY94 would support the programs listed in the previous answer.

Question. Last year, the committee earmarked \$2,500,000 for two projects at the Iowa Army Ammunition Plant (AAP) to support a proposed demil capability there. What is the status of that program?

Answer. The scope of work is complete on conducting a feasibility study for plasma arc technology. Following the study's completion (4th quarter FY93), a final decision will be made as to whether or not this technology is a viable option and if a plasma arc furnace should be located at Iowa AAP. Demonstrations of plasma arc furnaces have not yet shown a capability for disposing of large quantities of energetic material.

Question. What additional resources, if any, are needed in FY94 to continue the program at Iowa?

Answer. Any FY94 facilitization will be included in the \$7,000,000 planned program for Iowa AAP.

ARTILLERY AMMUNITION PRODUCTION BASE

Question. The only funding included in the budget for artillery ammunition procurement is for Sense and Destroy Armor (SADARM). What future requirements for artillery ammunition are currently projected?

Answer. The Army has future funding requirements for the 155mm SADARM XM898, 155mm Extended Range High Capacity Artillery Projectile XM982, 155mm Practice M804, 105mm High Explosive Rocket Assisted M913, and 105mm Dual Purpose Improved Convention Munition XM915/916 with Self-destruct Fuze. Procurement of these items is dependent upon Army priorities and available funding.

Question. When will the various elements of the artillery ammunition production base "go cold" under your current plan?

Answer. The following dates are estimates based on the current production environment:

Kansas Army Ammunition Plant (AAP)—Load, Assemble and Pack (LAP)—Nov 93

Louisiana AAP—LAP—Dec 93; metal parts (MPTS)—Oct 94
CMC, Waterloo—MPTS—cold as of Dec 92

Milan AAP—LAP—Apr 95

Pine Bluff Arsenal—LAP—Sep 93

Longhorn AAP—LAP—Sep 93

Olin Flinchbaugh—cold as of Jan 92

Iowa AAP—LAP—Sep 95

Scranton AAP—MPTS—Oct 94

Crane AAA—LAP—Dec 93

NI Industries—MPTS—Aug 93

Question. What are the Army's plans for the industrial facilities that currently constitute the artillery ammunition production base?

Answer. The plan is to retain, in lay away status, sufficient facilities, both metal parts and load, assemble and pack, to meet our current and replenishment needs. Those facilities not required will be excessed.

Question. What will it cost to carry out these plans and how much is included in your fiscal year (FY) 1994 budget for this? What future year costs are projected?

Answer. The FY94 budget includes \$7.5 million for disposal of artillery related equipment which is no longer required to meet projected peacetime and/or replenishment requirements. An additional \$4.5 million in disposal efforts is unfunded. Also funded in FY94 is \$1.7 million for laying away artillery related equipment at various locations, \$2.2 million to relocate equipment and \$9.8 million to maintain equipment already laid away. Future maintenance costs are projected at approximately \$10.0 million.

Question. Is there a requirement to "replenish" artillery ammunition after a future conflict? How much will this cost and how long will it take?

Answer. Yes, there is a requirement to replenish artillery ammunition where assets on hand will not satisfy both projected consumption and the replenishment quantity. The cost to replenish artillery ammunition is approximately \$302 million. Of this amount, 98 percent is for the 155mm Sense and Destroy Armor (SADARM) projectile. The average time to replenish is 24 months.

Question. What new artillery ammunition is currently on the drawing board and when is it expected to enter production?

Answer. New artillery projectiles currently in research and development include the 155mm SADARM XM898, 155mm Extended

Range High Capacity Artillery Projectile XM982 and 105mm Dual Purpose Improved Conventional Munition XM915/916. The XM982 and XM915/916 will not be ready to enter production until the late 1990s. Procurement of these rounds is dependent upon Army priorities and available funding.

ARTILLERY PROJECTILES, FUZES, AND PROPELLING CHARGES

Question. Explain the changes in the way the artillery fuze and prop charge requirements are calculated as a result of last years Defense Planning Guidance?

Answer. Currently, fuzes and propelling charges are balanced with artillery projectile requirements (war reserves and annual training). In prior years, fuzes and propelling charges were balanced to total projectile assets. This change is due to affordability considerations, not Defense Planning Guidance.

Question. What impact does this change have on the industrial base for fuzes and prop charges?

Answer. The reduced requirements for artillery fuzes and prop charges has resulted in reduced workload for ammunition producers.

Question. Does this change concern you?

Answer. Yes. A detailed review of the ammunition production base is currently underway to identify critical portions which must be retained and those which are no longer needed to support peacetime and contingency requirements. Also, the Armament, Retooling and Manufacturing Support Initiative, enacted by the Congress last year, is designed to encourage commercial utilization of our government-owned, contractor-operated (GOCO) Army ammunition plants where defense workload is declining. We hope that this Initiative will help us to maintain the necessary equipment and skilled labor force at our inactive GOCO facilities.

Question. For the record, provide a list of stockpile quantities for all 105mm and 155mm artillery projectiles and then show how many of each is unusable because it lacks a propelling charge, a fuze, or both.

Answer. Listed below are unfuzed 105mm and 155mm projectile assets projected to be on hand at the end of Fiscal Year (FY) 1994 funded delivery period. All 105mm Howitzer rounds come with a propelling charge. No artillery projectiles are unusable because they lack a fuze or propelling charge.

Thousands/Assets

| SSN | DODIC | Nomenclature | FY94 End funded
delivery period
assets |
|---------------------------------|---------------------|-------------------|--|
| E21501..... | C445 CTG ARTY..... | 105MM HE M1..... | 2,340 |
| E22002..... | C479 CTG ARTY..... | 105MM SMK HC..... | 12 |
| E22201..... | C477 CTG ARTY..... | 105MM SMK WP..... | 254 |
| E22800..... | C463 CTG ARTY..... | 105MM HERA..... | 24 |
| E53500..... | T915 CTG ARTY..... | 105MM ICM..... | 0 |
| E53700..... | C546 CTG ARTY..... | 105MM HERA..... | 68 |
| E66900..... | C473 CTG ARTY..... | 105MM HE ER..... | 84 |
| Subtotal 105mm Projectiles..... | | | 2,782 |
| E26900..... | D505 PROJ ARTY..... | 155MM ILLUM..... | 145 |

[In thousands]

| SSN | DODIC | Nomenclature | FY94 End funded
delivery period
assets |
|--|----------------------|------------------------|--|
| E27000..... | D506 PROJ ARTY | 155MM SMK HC..... | 23 |
| E27601..... | D544 PROJ ARTY | 155MM HE | 1,581 |
| E27900..... | D550 PROJ ARTY | 155MM SMK WP | 73 |
| E28100..... | D563 PROJ ARTY | 155MM ICM | 4,903 |
| E28300..... | D562 PROJ ARTY | 155MM ICM | 210 |
| E66300..... | D061 PROJ ARTY | 155MM SADARM | 1 |
| E66500..... | D579 PROJ ARTY | 155MM HERA | 449 |
| E67100..... | D501 PROJ ARTY | 155MM ADAM-L | 40 |
| E67200..... | D502 PROJ ARTY | 155MM ADAM-S | 117 |
| E67501..... | D503 PROJ ARTY | 155MM RAAMS-L | 99 |
| E67502..... | D509 PROJ ARTY | 155MM RAAMS-S | 314 |
| E67601..... | D510 PROJ ARTY | 155MM COPPERHEAD | 19 |
| E67800..... | D528 PROJ ARTY | 155MM SMK WP | 294 |
| E69500..... | D861 PROJ ARTY | 155MM BASEBURNER | 918 |
| E69800..... | D513 PROJ ARTY | 155MM TP | 53 |
| Subtotal 155mm Projectiles | | | 9,239 |
| Total 155mm Propelling Charges | | | 10,768 |
| Total 105mm and 155mm Unfuzed
Projectiles. | | | 12,021 |
| Total artillery fuzes | | | 19,926 |

ARTILLERY AMMUNITION PALLETS

Question. Last year, the committee specified that \$10 million of the funding provided in the "Ammunition Component" line be used to procure a new "Field Artillery Projectile Pallet" (FAPP). What is the status of this program?

Answer. The FAPP is being procured to meet two requirements: (1) palletization of the 155mm Baseburner projectile (fiscal year (FY) 1993 program), and (2) repalletization of all 155mm projectiles stored on prepositioned afloat ships. The first requirement is being met by a sole source contract to Rock Island Arsenal (RIA) for 7,500 pallets and a follow-on competitive solicitation. The contract to RIA was necessary to meet the current FY93 load, assemble and pack production schedule for the M864. The prepositioned afloat ship requirement will be met by a separate competitive solicitation. The competitive solicitations will be limited to small and disadvantaged business firms.

Question. What is the current procurement profile for this program, including funding and quantities?

Answer. The procurement profile for FAPP to meet prepositioned afloat ship requirements is shown below. The cost of pallets for the M864 program is included in the cost of the round.

| Program | Fiscal years | | |
|-------------------------|--------------|------|------|
| | 1992 | 1993 | 1994 |
| Dollars (millions)..... | 8.0 | 12.0 | 0 |
| Quantity (K) | 21 | 31 | 0 |

Question. How much is included in the FY94 procurement budget for this program? On what line?

Answer. None.

Question. What are the outyear funding requirements for this program?

Answer. No outyear funding requirements have been projected for this program.

Question. What are the current program milestones?

Answer.

| | |
|--|------------------|
| Small Business Solicitation..... | March 93 |
| Cost/Productibility Engineering Study..... | April 93 |
| Technical Data..... | April 93 |
| Pallet Competitive Contract Award..... | 4th Quarter FY93 |
| First Units Delivered..... | 2nd Quarter FY94 |

Question. The Committee specified that this program should be a minority set-aside procurement. What is the Army doing to implement this direction?

Answer. A competitive solicitation for palletization of the M864, limited to small and disadvantaged businesses, was issued on 18 March 1993. Estimated contract award is July 1993. A second competitive procurement to meet propositioned afloat ship requirements, also limited to small and disadvantaged businesses, is projected for award in September 1993.

Question. What is the overall procurement strategy?

Answer. The procurement of pallets will be restricted to Small and Disadvantaged business firms, with the exception of the initial procurement of 7,500 pallets which was awarded to Rock Island Arsenal (RIA). This initial procurement was directed to RIA in order to meet the production schedule for the M864 load, assemble and pack. A competitive solicitation was issued on 18 March 1993 to complete palletization of the M864. A second competitive procurement is planned to meet prepositioned afloat ship requirements.

Question. What is the Marine Corps participation in this program?

Answer. The Marine Corps is not currently participating in this program.

M72 LIGHTWEIGHT ANTIARMOR WEAPON

Question. The Army has a longstanding requirement from Congress to type classify the M72E4 Lightweight Antiarmor Weapon. What progress has been made in this effort?

Answer. Hardware for both Development Tests (DT) and Operational Tests (OT) has been obtained. DT testing began 13 Apr 93. OT are scheduled for 2-14 Aug 93.

Question. Last year we were told that type classification would take place in February 1994. What are your current plans, as well as other program milestones?

Answer. Type classification is presently scheduled for Oct 93. The Test Report and Independent Evaluation Report will be prepared in the Aug-Sep 93 timeframe.

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, APRIL 22, 1993.

NAVY PROCUREMENT PROGRAMS

WITNESSES

DR. EDWARD C. WHITMAN, SENIOR CIVILIAN OFFICIAL, OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT AND ACQUISITION

VICE ADM. WILLIAM A. OWENS, USN, DEPUTY CHIEF OF NAVAL OPERATIONS, RESOURCES, WARFARE REQUIREMENTS AND ASSESSMENT

LT. GEN. CHARLES C. KRULAK, USMC, COMMANDING GENERAL, MARINE CORPS COMBAT DEVELOPMENT COMMAND

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning's hearing on the Navy Procurement accounts will cover a wide range of programs with an aggregate value of \$16.4 billion, a decrease of 22 percent from the fiscal year 1993 programs.

The Committee is pleased to welcome Dr. Edward C. Whitman, who is the Acting Assistant Secretary of the Navy for Research, Development, and Acquisition. He is accompanied by Vice Admiral William A. Owens, the Deputy Chief of Naval Operations for Resources, Warfare Requirements, and Assessments and by Lt. General Charles C. Krulak, who commands the Marine Corps Combat Development Command.

I want to welcome this distinguished panel. Admiral Owens, I am glad to see somebody from the field who has not been too long in Washington, and General Krulak, I guess you and I were in Vietnam at the same time, in 1966 and 1967.

Dr. Whitman's prepared statement and the biographies of Admiral Owens and General Krulak will appear in the record, without objection.

If you would summarize your statements, we would appreciate it. I can remember when the procurement budget was a lot larger. I know as it gets smaller it makes it more difficult. I can see it is going to be a lean time.

Dr. Whitman.

SUMMARY STATEMENT OF DR. WHITMAN

Dr. WHITMAN. We appreciate the opportunity to be here for a second day. My summary will be fairly sort. As you know, we are facing substantial downsizing in both our budget and our force structure at the same time we are being asked to shoulder new responsibilities in regional and littoral conflicts.

We are attempting to respond to these challenges both by measured upgrades and performance improvements of existing systems

and by investing in a prudent number of new systems which we are tailoring to littoral warfare and its requirements.

We are seeking every opportunity that we can find to make greater use of commercial and industrial equipment and standards, as well as commercial approaches to procurement. We are trying to forge a new partnership with industry which will allow us to take greater advantage of their particular skills in answering market needs.

We continue to believe in the principle of sharing risk reduction with industry so that both sides are treated fairly. That concludes my remarks. There is not a great deal more that I will go into, since the prepared statement is relatively comprehensive, Mr. Chairman, in laying out our budget request for this year.

Mr. MURTHA. Admiral Owens.

SUMMARY STATEMENT OF ADMIRAL OWENS

Admiral OWENS. Mr. Chairman, it is very nice to be here with you. This has been a time of great change in the Navy.

I won't go into detail, but the three major changes are "... From the Sea", the reorganization of the OPNAV staff and the process through which we put together this budget and our program for the next five years. Notable is the sincere marriage of the Navy and the Marine Corps.

General Krulak and I have been close as brothers as we have gone through this process. We hope you notice these kinds of changes are implicit in our budget submission.

Mr. MURTHA. General Krulak.

General KRULAK. Mr. Chairman, I am honored to be here. We are ready for questions.

[The biographies and joint statement of Dr. Whitman, Admiral Owens, and General Krulak follow:]

Dr. Edward C. Whitman
Senior Civilian Official
Office of the Assistant Secretary of the Navy
(Research, Development, & Acquisition)

Dr. Edward Whitman was designated by the former Secretary of the Navy to perform the duties of the Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN(RDA)) during the present transitional period and is serving in this capacity as the Department of the Navy's senior procurement and RDT&E official. Since June 1990, he has filled the position of Deputy Assistant Secretary for C⁴I, Electronic Warfare, and Space, advising the Assistant Secretary within that purview, and assisting him in the oversight of both Navy acquisition programs and the Department's Information Resource Management activities.



Born in Newark, New Jersey, Dr. Whitman attended the Massachusetts Institute of Technology and participated as an undergraduate in the cooperative program in electrical engineering at the Naval Surface Weapons Center, White Oak, Maryland. He received the bachelor's and master's degrees in electrical engineering from MIT in January 1963 and then the degree of Electrical Engineer (E.E.) in June 1964. At that time, he returned to White Oak as an electrical engineer and worked on a variety of underwater weapons, including mines, torpedoes, and sonobuoys. He received a Ph.D. in electrical engineering from the University of Maryland in June 1970. In June 1975, he was promoted to Chief of the Sensors Division, where he was engaged primarily in line management of the Navy's in-house effort on sensors for undersea mines and development of a corresponding technology base.

In August 1979, Dr. Whitman was appointed Science Advisor to the Commander, U.S. Sixth Fleet, under the auspices of the Navy Science Assistance Program (NSAP), and served in the Mediterranean area in that role for two years. Upon his return to the United States in June 1981, he became Director of the Naval Warfare Division at the Defense Advanced Research Projects Agency (DARPA), where for three years he directed DARPA's program for the application of new technology to naval warfare problems.

Following his tour at DARPA, Dr. Whitman spent three years in the Space, Command and Control Directorate of the Chief of Naval Operations (OP-094), first as Deputy Director of the Planning and Programming Division and then as Chief Scientist. In OP-094, he was responsible for technical monitoring and assessment of various Navy C³ programs, technology base liaison, and planning and programming for the Navy Command and Control System. He was then named Technical Director of the Anti-Submarine Warfare (ASW) Program Directorate in the Space and Naval Warfare Systems Command, with particular responsibility for the Navy's ASW system architecture. Just prior to his assignment in ASN(RDA), he served as Senior Technical Advisor in the Defense Mobilization Systems Planning Activity.

BIOGRAPHY OF
VICE ADMIRAL WILLIAM A. OWENS, USN
DEPUTY CHIEF OF NAVAL OPERATIONS
RESOURCES, WARFARE REQUIREMENTS AND ASSESSMENTS (N-8)

Vice Admiral William Arthur Owens entered the nuclear submarine program in 1962. He has served in four strategic nuclear powered submarines and three nuclear attack submarines, including tours as Commanding Officer, USS SAM HOUSTON (SSBN 609) and USS CITY OF CORPUS CHRISTI (SSN 705). He has also commanded Submarine Squadron FOUR and Submarine Group SIX. He has served as a member of the U.S. Navy's first Strategic Studies Group, as Executive Assistant to the Vice Chief of Naval Operations, and as Director Office of Program Appraisal in the Office of the Secretary of the Navy. In 1987, he became the first director of the U.S. Navy's Strategic Think Tank (now Strategic Planning and Analysis Group). Vice Admiral Owens served as the Senior Military Assistant to the Secretary of Defense from July 1988 to August 1990. He was confirmed by the U.S. Senate as a Vice Admiral on August 4, 1990. He commanded the U.S. Sixth Fleet and NATO's Naval Striking and Support Forces Southern Europe from November 2, 1990 to July 9, 1992. In July 1992, he became the Deputy Chief of Naval Operations for Resources, Warfare Requirements and Assessments (N-8).

Vice Admiral Owens was born in Bismarck, North Dakota on May 8, 1940. He is a 1962 graduate of the U.S. Naval Academy. He holds B.A. and M.A. degrees in Politics, Philosophy and Economics from Oxford University, Oxford, England and a Masters Degree in Management from The George Washington University, Washington, D.C.

Vice Admiral Owens and his wife, Monika, have one son, Todd, a Midshipman at the U.S. Naval Academy.

UNITED STATES MARINE CORPS

HEADQUARTERS MARINE CORPS, DIVISION OF PUBLIC AFFAIRS
WASHINGTON, D.C. 20380, (703) 614-4309



LIEUTENANT GENERAL CHARLES C. KRULAK, USMC

Lieutenant General Charles C. Krulak is currently serving as the Commanding General, Marine Corps Combat Development Command, Quantico, Virginia.

General Krulak was born on March 4, 1942 in Quantico, Virginia. He graduated from the U.S. Naval Academy in 1964 with a B.S. degree in Engineering and also holds an M.S. degree in Labor Relations from George Washington University (1973). He is a graduate of the Amphibious Warfare School (1968); the Army Command and General Staff College (1976); and the National War College (1982).

Since his commissioning and graduation from The Basic School at Quantico, General Krulak has held a variety of command and staff positions. He commanded a platoon and two rifle companies during his two tours of duty in Vietnam; Commanding Officer, Special Training Branch, and Recruit Series, MCRD, San Diego, Calif. (1966-1968); Commanding Officer, Counter-Guerilla Warfare School, NTA, Okinawa (1970); Company Officer, U.S. Naval Academy (1970-1973); Commanding Officer, Marine Barracks, Naval Air Station, North Island, Calif. (1973-1976); and Commanding Officer, 3d Battalion, 3d Marines (1983-1985).



General Krulak's staff assignments include: S-3 of the 2d Battalion, 9th Marines (1977-1978); Chief of the Combat Arms Monitor Section, Headquarters Marine Corps, Washington, D.C. (1978-1979); Executive Assistant to the Director of Personnel Management, Headquarters Marine Corps (1979-1981); Plans Officer at FMF Pacific (1982-1983); Executive Officer, 3d Marines, 1st MEB; Assistant Chief of Staff for Maritime Pre-positioning Ships, 1st MEB; Assistant Chief of Staff, G-3, 1st MEB; and the Military Assistant to the Assistant Secretary of Defense for Command, Control, Communications and Intelligence, Office of the Secretary of Defense.

He was assigned duty as the Deputy Director, the White House Military Office in September 1987. While serving in this capacity, he was selected for promotion to brigadier general in November 1988. He was advanced to that grade on June 5, 1989, and assigned duties as the Commanding General, 10th Marine Expeditionary Brigade/Assistant Division Commander, 2d Marine Division, FMF, Atlantic, Camp Lejeune, N.C., on July 10, 1989. On June 1, 1990 he assumed duties as the Commanding General, 2d Force Service Support Group/Commanding General, 6th Marine Expeditionary Brigade, FMF, Atlantic, Camp Lejeune, N.C. He served in this capacity until July 12, 1991, and was assigned duty as Assistant Deputy Chief of Staff for Manpower and Reserve Affairs (Personnel Management/Personnel Procurement), Headquarters Marine Corps on Aug. 5, 1991. He was advanced to major general on March 20, 1992. General Krulak assumed his current assignment on Aug. 24, 1992, and was promoted to his present grade on Sept. 1, 1992.

His decorations and medals include: the Defense Distinguished Service Medal; Distinguished Service Medal; Silver Star Medal; Bronze Star Medal with Combat "V" and two gold stars; Purple Heart with gold star; Meritorious Service Medal; Navy Commendation Medal; Combat Action Ribbon; Presidential Unit Citation with bronze star; National Defense Service Medal with one bronze star; Vietnam Service Medal with silver star and two bronze stars; Southwest Asia Service Medal with two bronze stars; Sea Service Deployment Ribbon; Republic of Vietnam Cross of Gallantry; Republic of Vietnam Meritorious Unit Citation (Gallantry Cross Color); Republic of Vietnam Meritorious Unit Citation (Civil Actions Color, 1st Class); the Republic of Vietnam Campaign Medal; and the Kuwait Liberation Medal.

Lieutenant General Krulak is married to the former Zandra Meyers of Annapolis, Maryland. They have two sons, David and Todd.

(Revised Oct. 2, 1992 HQMC)

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
HOUSE APPROPRIATION COMMITTEE
DEFENSE SUBCOMMITTEE

STATEMENT OF

DR. EDWARD C. WHITMAN
SENIOR CIVILIAN OFFICIAL
OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)

AND

VICE ADMIRAL WILLIAM A. OWENS, USN
DEPUTY CHIEF OF NAVAL OPERATIONS
RESOURCES, WARFARE REQUIREMENTS AND ASSESSMENTS

AND

LIEUTENANT GENERAL CHARLES C. KRULAK, USMC
COMMANDING GENERAL
MARINE CORPS COMBAT DEVELOPMENT COMMAND

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

ON THE FY 1994

NAVY PROCUREMENT PROGRAM

APRIL 22, 1993

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
HOUSE APPROPRIATIONS COMMITTEE
DEFENSE SUBCOMMITTEE

Mr. Chairman, distinguished members of the Defense Subcommittee, thank you for this opportunity to appear before you and discuss the FY 1994 Navy procurement requests. Despite the historic changes of recent years, the world has entered a period of great uncertainty in regions critical to our national interests. The Navy has a crucial role to play in meeting these new challenges. At the same time, we recognize that the current strategic situation allows the country to devote fewer resources to defense, which requires us to continue the force drawdown which has been underway for more than four years.

It is important for the committee to understand that we in the Navy have fundamentally changed our approach to the future. We recognize that business as usual is no longer appropriate and have responded to the challenges and opportunities of the new strategic environment and the era of constrained fiscal resources by:

- Developing a new strategic vision articulated in our White Paper, . . . **From The Sea**
- Reorganizing our headquarters staff
- Fundamentally changing the way we allocate resources

As a result of these changes, we believe we are on track to emerge from the period of budget reductions with a smaller but highly capable Navy and Marine Corps team which retains its traditional expeditionary focus, is manned with high quality personnel, and is equipped with technologically superior weapons and platforms. The FY 1994 procurement budget request represents the initial step in bringing to budget reality the warfighting requirements discussed in ". . . **From The Sea**."

GUIDING PRINCIPLES

As we developed our budget for FY 1994 and future years, we were guided in our efforts by a number of fundamental principles. These principles reflect the requirement to support our new warfighting focus as well as respond to new fiscal realities. The FY 1994 procurement requests were derived from the following principles:

- Maintain the Navy's core capabilities in crisis response and power projection forces to support the national strategy
- Emphasize American advantages in high technology, particularly in the areas of sensors and weapons

- Reduce the size of the battleforce by retiring less capable and operationally expensive platforms
- Continue to modernize the surface combatant force and carrier airwings
- Procure systems which enhance our ability to operate in the joint arena

The FY 1994 budget request is only the beginning of a process that will fully realize the principles outlined above and transition the Navy to the high technology force of the 21st Century.

PROGRAM HIGHLIGHTS

Core Capabilities

A key capability that the Navy and Marine Corps team provides the country is forward deployed naval expeditionary task forces centered around aircraft carriers and large deck (LHA, LHD class) amphibious ships. These forces provide the country rapid response to crises and in the event of a major conflict act as the "wedge" that enables full-scale joint operations. The on-going withdrawal of U.S. forces from overseas bases means that naval forces will assume an increasingly important role as the primary means by which this country initially responds to crises.

The FY 1994 procurement programs request maintains the Navy's and the nation's investment in this core capability by providing advance funding for the refueling of CVN 68 and by completing funding for LHD 6. Delivery of the latter will provide the Navy with 11 large deck amphibious ships to go along with the planned 12 carrier force.

To fill carrier airwings, we will continue to procure FA-18 C's while we continue development of the FA-18 E/F. Power projection capabilities of our large deck amphibious ships will be enhanced by a remanufacturing and upgrade program for the AV-8B. This will provide the AV-8B fleet with a night fighting capability.

Emphasis On High Technology

As we reduce the size of our Naval forces, we must continue to invest in high technology systems, particularly in the areas of weapons and sensors. Power projection capabilities of our aircraft and ships will be enhanced by continuing procurement of a system of standoff weapons and precision guided munitions including the Tomahawk Block III Land Attack Missile, the Stand-off Land Attack Missile, and the GBU-24 Laser Guided Bomb. We are also increasing our investment in sensor fused weapons. Investment in high technology for the Marine Corps will help provide those force multipliers integral to maximizing minimal USMC procurement dollars..

To increase the survivability of our platforms against the threats of the future, the Navy is upgrading its torpedoes to improve their capability against the shallow water ASW

threat and is procuring the Rolling Airframe Missile to provide certain classes of surface ships with enhanced cruise missile defense.

Reduce the size of the Battle force

We can maintain a significantly smaller total battle force than we once planned because of the changed strategic environment. Our emphasis on technology will help to ameliorate the effects of a smaller force structure by providing each platform with increased capability. As a result, we are accelerating the retirements of less capable and more operationally expensive ships. Significantly, our SCN account for FY 1994 deleted the previously planned refuelings of two nuclear cruisers. At the same time, we continue procurement of the highly capable DDG-51 class destroyers.

We have also decided that we must begin to transition our tactical aircraft inventory to all multi-mission capable platforms. This process begins in FY 1994 with the decommissioning of two A-6 squadrons and the initiation of an effort to upgrade the F-14 with a precision strike capability. We also continue our development efforts in the FA-18 E/F strike-fighter and A/FX multi-mission aviation programs.

Operate in the Joint Arena

We are fully committed to the concept of joint operations. In the event of major regional conflicts, a key role of Navy and Marine Corps expeditionary forces will involve securing the way for the introduction of heavy Army and Air Force units. To permit effective operations with our sister services, we have recognized the requirement to upgrade communications capabilities of our carriers and large deck amphibious ships. The FY 1994 request accelerates communication upgrades for these platforms with programs such as the Tactical Flag Command Center, the Joint Tactical Information Distribution System, and the Joint Service Information Processing System for these platforms. These efforts will provide effective command and control capability in support of joint task force operations.

SUMMARY

Mr. Chairman, we believe we have presented a fiscally responsible program that responds to our warfighting requirements and reflects the new strategic environment. We are making the hard decisions now which will keep us a highly capable, relevant, and affordable force. The FY 1994 budget request is the beginning of a process that will produce the Navy and Marine Corps of the 21st century.

We have deeply appreciated the central role of the Congress in supporting the past procurement efforts which have given our nation Naval forces which are second to none. The Department of the Navy looks forward to your continuing support and a fruitful collaboration in maintaining a strong and vital Navy as we proceed into the uncharted waters of the 21st Century.

PROGRAM INFORMATION

AIR PROGRAMS

The Department's aircraft procurement budget request for FY 1994 is \$6,132.6 million. This budget will allow us to procure ninety-six aircraft and pursue an aggressive modification program to extract the maximum useful life from our existing aircraft. Our budget and approach to modernization are consistent with a realistic view of future budget projections.

F/A-18

The F/A-18 is the only fixed-wing carrier-capable combat aircraft currently in production; and is the only such Naval aircraft planned to be in production for the next fifteen years. The Department plans to continue production of the C/D version until production of the E/F begins in FY 1997. The President's Budget proposes a four year Multi-Year Procurement to commence in FY 1994 for the remaining 132 F/A-18C/D aircraft. We expect to realize a net savings of approximately \$218M through this action. Foreign Military Sales (FMS) of the F/A-18 has proven to be a source of real savings to the Navy in terms of per unit costs as well as maintaining the civilian job base. The downside is that a reduction in quantities purchased by any of the FMS participants, or by the Navy, will adversely impact the per unit costs and can even jeopardize the ability of a country to continue to participate. Reductions in Navy procurements of the F/A-18, for example, could jeopardize the Finnish procurement as well as the impending Swiss procurement. Conversely, loss of the Swiss sale in FY 1994 would increase Navy costs by approximately five percent in FY 1994 and 1995.

F-14

The Navy will accept the last remanufactured F-14D in February 1994 resulting in a total of 54 F-14D aircraft in the Navy's inventory. Through the next several years a core of F-14A's and B's will undergo various modifications designed to increase survivability, improve aircraft safety, ensure adequate airframe life, and upgrade selected avionics to accommodate technological advancements in air-to-air and air-to-ground weapons. This Structural and Survivability Upgrade program was initiated in FY 1992, and the first of 196 aircraft will be inducted in FY 1994. The Navy will also initiate a limited program this year to re-engine a quantity of F-14A aircraft to the "B" configuration using funds provided by Congress in FY 1992 and FY 1993. RDT&E funding (\$72M) is budgeted in FY 1994 to initiate a Strike Upgrade program in order to provide a modest improvement to 210 A/B/D aircraft to enable delivery of precision laser guided bombs.

E-2C

The procurement of new production Navy E-2 Group II aircraft ended in FY 1992. However, FMS procurements of two aircraft for Japan and one additional aircraft for Egypt are sustaining the E-2 line. Several FMS cases are pending for Taiwan, France, Thailand, and Korea which could further sustain E-2 production. Additional potential FMS sales are possible to Japan, Indonesia, and Singapore.

In FY 1991 the Navy initiated a retrofit program for older E-2's (currently in the Group 0 or Group I configuration) which includes an improved engine; the APS-145 radar which provides extended detection range and improved auto-detect and track in all environments; navigation improvements including the Global Positioning System (GPS); an improved IFF capability; and JTIDS. This will provide a single E-2 Group II configured fleet to meet airborne early warning requirements in support of the carrier battle group and amphibious operations. The first three aircraft will be inducted this year with an additional seven in FY 1994.

EA-6B

The Navy is continuing with a remanufacturing program for the EA-6B electronic warfare aircraft that incorporates an upgraded receiver/processor group, which will dramatically improve signal processing over the current system, improved avionics, Global Positioning System (GPS), and minor airframe modifications to improve safety, reliability, and maintainability. This modernization plan will result in all EA-6B aircraft having a standard Advanced Capability (ADVCAP) configuration.

P-3

In recognition of a diminished ASW threat and the cancellation of the P-3C Update IV avionics program, we have developed a modernization plan for the Maritime Patrol force that sustains the P-3C inventory, reduces multiple configurations, and upgrades current systems. A key element of the program is a Sustained Readiness Program (SRP) that will extend the projected operational life of the P-3C by thirty per cent, or by an average of seven to eight years. We also plan conversion of the P-3C aircraft to one common fleet configuration, Update III. To ensure that the P-3C will remain highly effective in joint littoral and battle group operations, the Navy also plans to modify one-third of the force with enhanced Antisurface Warfare (ASUW), command, control and surveillance capabilities which includes the Inverse Synthetic Aperture Radar, improved infra-red detection, an electro-optical imaging system, and command and control improvements.

AV-8B

The AV-8B Remanufacture Program will begin retrofitting approximately seventy-three existing day attack AV-8B aircraft in FY 1994 to the radar/night attack configuration by installing the APG-65 radar, a night attack cockpit (NAVFLIR and a digital moving map) and an improved engine. Major components of the day attack aircraft such as the wing, horizontal stabilizer, vertical tail and many internal components and systems will be

re-used, thus reducing costs. The President's Budget includes \$144.6M in FY 1994 for the remanufacture program which will continue through FY 2000. Starting the remanufacture program in FY 1994 avoids a gap in the current production line, which minimizes the unit cost. Remanufactured AV-8B's, along with existing Radar and Night Attack AV-8B's, will provide the Marine Corps a V/STOL fleet that can provide highly effective close air support (CAS) during hours of darkness and adverse weather.

CH-46E Replacement Aircraft

The CH-46 has provided a medium lift capability for nearly 30 years. While it has served us well, it is becoming increasingly difficult to maintain and lacks survivability on both current and future battlefields. Tilt-rotor technology is being pursued as one potentially advantageous method for carrying our Marines into combat during the next century. The FY93 budget provided funds for a V-22 Engineering, Manufacturing and Development (EMD) program. This EMD program modifies two existing Full Scale Development (FSD) aircraft and constructs four production representative aircraft to qualify production tooling. The requirement to replace the CH-46 is well documented. Your continued support is necessary as we strive to attain this goal. Continued delays in providing a survivable medium lift replacement will eventually have a crippling effect on tactical mobility.

CH-46 Modifications

A Dynamic Component Up-grade (DCUP) will begin in FY 1995 to replace life limited dynamic components and reduce the number of required special inspections. However, this effort does not extend the service life of the aircraft or lessen the operational shortfall that now exists. Replacement of the fleet of medium lift aircraft is required to continue to support the needs of our operational forces.

AH-1W

The 12 aircraft in the FY94 budget request continue the Marine Corps efforts to modernize the attack helicopter community. The versatile and multi-mission AH-1W remains our premier attack helicopter. The AH-1W ability to employ mission-tailored weapons (TOW, HELLFIRE, SIDEARM, SIDEWINDER, rockets and 20mm cannon) and its Night Targeting System (NTS) expands the operational capability of the Super Cobra, corrects a serious Desert Storm deficiency, and provides precise close-in fire support and assault fire suppression 24 hours a day. NTS greatly enhances night operations by incorporating a forward-looking infrared sensor with multiple fields of view and a laser target designator for an autonomous HELLFIRE capability. The laser range finder greatly improves weapons accuracy and provides pilots with the visual cues necessary for earlier target detection and engagement. NTS increases reliability and can provide laser designation for other tactical aircraft. We are currently looking closely at a cost effective AH-1W midlife upgrade program which increases reliability and sustains this platform until the advent of a follow-on aircraft.

CH-53E

The FY94 request for 12 heavy lift CH-53Es will bring the fleet to 155. The Helicopter Night Vision System (HNVS) will provide an integrated night cockpit with a forward looking infrared system for the CH-53E series aircraft. HNVS will significantly reduce pilot workload by integrating navigation information with aircraft performance data. The CH-53E represents the only available heavy lift option capable of meeting Marine Corps requirements.

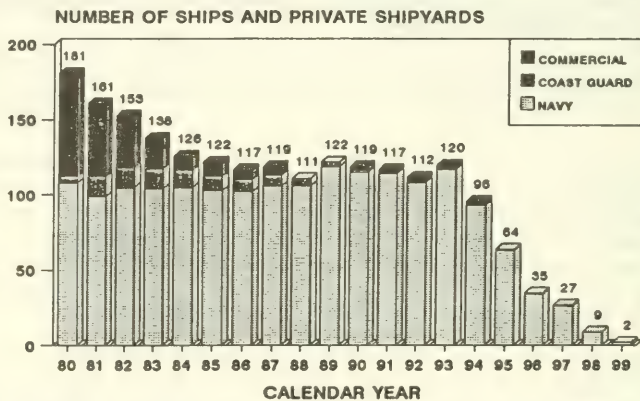
T-45

In FY 1994, we will continue to procure the T-45 at the rate of twelve per year. The program has experienced some delay as a result of the accident last summer which was caused by a design problem with the brake system and associated test instrumentation. Solutions have been implemented and the flight test program has resumed. We expect to complete technical and operational testing in FY 1994 and obtain a Milestone III decision to begin full rate production in FY 1995.

SHIP PROGRAMS**Shipbuilding Industrial Base**

The FY 1994 budget request for SCN funds continues the downward spiral of shipbuilding with 8 new construction ships at \$5,853.2 million in FY 1993 and only 6 new construction ships and one conversion at \$4,294.7 million in FY 1994. Figure (1) shows how the significant reduction in shipbuilding over the last ten years will result in a dramatic reduction in ships under construction over the next five years.

NAVY, COAST GUARD AND COMMERCIAL SHIPS UNDER CONSTRUCTION 1980 - 1999



| | | | | | | |
|---------|---------|----|----|----|---------|---|
| # YARDS | 25 | 22 | 23 | 18 | 12 | ? |
| EMPLMT | 148,800 | | | | 107,000 | ? |

Figure (1)

The U.S. Navy continues to be the only major shipbuilding customer in the country. The number of ships that the Navy expects to build under any reasonable shipbuilding plan will not sustain the current shipbuilding base. As the industry rationalizes to eliminate excess production capacity, it is likely that many jobs will be lost and some shipyards will

have to find other work or close. The revitalization of commercial shipbuilding would greatly enhance the shipbuilding industry's future viability. The Navy can not carry the full burden of maintaining the shipbuilding base. Figure (2) illustrates the dramatic decline of commercial shipbuilding.

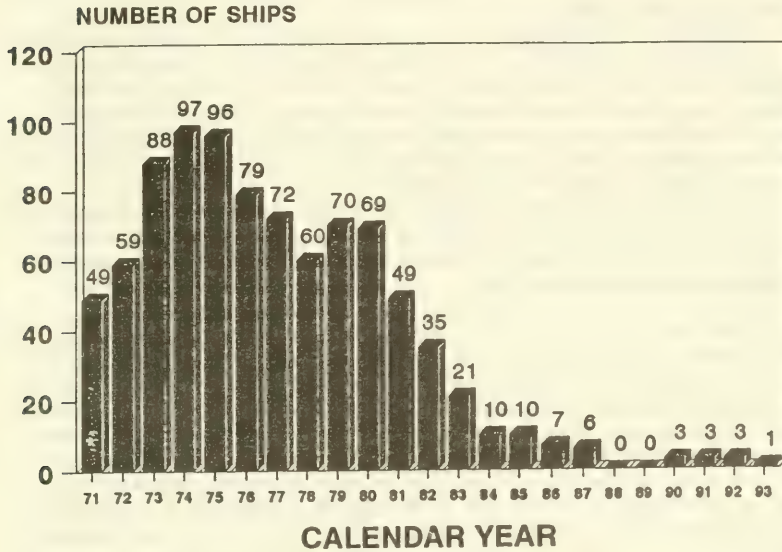


Figure (2)
COMMERCIAL SHIPS UNDER CONSTRUCTION
OR ON ORDER AT U.S. PRIVATE YARDS

The submarine shipbuilding industrial base is clearly under severe pressure as we adjust to the reality of a reduced threat. The final submarine currently authorized at Newport News will deliver in August 1996. The continued nuclear construction capability at Newport News will rest heavily on your decision to fund a nuclear carrier in 1995. The SSN-21 and SSN-22 at Electric Boat are scheduled for delivery in May 1996 and June 1997, respectively. The President's Budget contains resources for the development of a New Attack Submarine. Although these dates are seemingly close, key facilities at the front ends of the Electric Boat and Newport News construction lines will be out of work far earlier. For example, the ring module shop at Newport News will have completed

work on their last submarine under contract by late this summer. Other facilities later in the construction process will run out of work sequentially as the last submarine nears completion. A similar process will occur at Electric Boat. As part of its action on the SSN-21 Class rescission proposal, Congress provided \$540.2 million of Fiscal Year 1992 funds for advance procurement for the SSN-23, restart of SSN-688 production, or other actions that would maintain the submarine industrial base. Studies on how best to utilize this funding are nearing completion.

Throughout the shipbuilding industry, there has been a steady decline in the vendor base supporting ship construction. The number of key ship component vendors has decreased by more than 20% over the last decade. That negative trend is expected to continue. The effects will trickle down through thousands of second and third tier suppliers. Many key ship components such as large diesel engines, arresting gear and anchors, are down to a single US source. Others, such as low speed diesel engines and periscope lens glass, are available from foreign sources only.

The Navy views these trends with great concern. Reconstitution of the shipbuilding industrial base is a complex issue. There is no simple solution. The Navy is working closely with the Office of the Secretary of Defense to evaluate alternatives to maintain our technical and manufacturing capabilities.

Surface Combatants

The second ship of the DDG-51 class of AEGIS Guided Missile Destroyers, USS BARRY (DDG 52), was commissioned last year. Like her predecessor, USS ARLEIGH BURKE, BARRY has performed superbly during her Post-Delivery Tests and Trials period. Word from her Commanding Officer indicates that we may have under-advertised her many fine capabilities as a surface combatant. Improvements are still needed to reduce costs and emphasize combat capabilities needed in the littoral environment. The result of incorporating several modifications into the DDG 51 design will be an affordable DDG 51 variant to meet the minimum peacetime forward presence and warfighting requirements of the 21st Century. Flight IIA ships will be equipped with a Baseline 6 AEGIS Combat System and incorporate a dual helicopter hangar capable of supporting LAMPS MK III or other helicopters configured for multiple missions including anti-surface, anti-submarine, mine warfare and naval surface fire support in regional and blue-water scenarios. The configuration will also include a mine detection capability and, when available, Evolved Sea Sparrow Missiles for short range ship self defense. DDG Flight IIA's are intended to replace retiring helicopter-capable battle force combatants and will include a variety of cost reduction efforts that will save both procurement and life cycle costs. The first of these Flight IIA DDG 51s is scheduled to be contracted in FY 1994.

We will be modifying and simplifying the AN/SQQ-89 Surface ASW Combat Suite on the DD-963 class destroyers by converting the AN/SQS-53 active sonars from analog to digital processing. The net effect will be continuous improved performance both in deep and shallow waters. We will also be continuing the Surface Ship Torpedo Defense program, which will be of significant value in a littoral conflict.

Aircraft Carriers

For the foreseeable future, the keystone of Naval power projection will remain the aircraft carrier and embarked airwing. The sixth NIMITZ Class nuclear aircraft carrier, the GEORGE WASHINGTON (CVN 73), delivered ahead of schedule last June. CVN 74 and CVN 75 are currently on or ahead of schedule. Advance procurement funds for CVN 76, which is scheduled for contract award in FY 1995, were provided in the FY 1993 appropriation.

Submarines

SEAWOLF (SSN-21) is approximately 40% complete at Electric Boat. Construction on SSN-22, held up by litigation and last year's proposal to rescind funding, began construction in September 1992. The SEAWOLF was designed to meet the Cold War threat. With the changing environment, development of a new more affordable attack submarine is critical for future ASW, sea control, special operations and power projection. A Cost and Operational Effectiveness Analysis (COEA) of various submarine alternatives is underway. This analysis will lead to a Milestone I Defense Acquisition Board late this fiscal year, authorizing the concept which will be carried forward through design and construction. The Fiscal Year 1994 budget request includes significantly increased funding for this effort, which is required to support preliminary design, cost reduction efforts, and development of hull, mechanical, electrical, and combat systems.

Submarine combat and weapons systems procurement in FY 1994 will focus on completing near term developments that will deliver combat systems and weapons to the fleet that will provide state-of-the-art capabilities. The AN/BSY-2 Submarine Combat System will complete the majority of its Full Scale Development effort in FY 1994 to support the first production system being delivered to the shipbuilder in early FY 1995. All three of the production AN/BSY-2 systems, which were contracted for prior to the truncation of the SEAWOLF program, will be procured to fulfill the requirements of SSN 21, SSN 22 and a Consolidated Shore Facility for system support. AN/BSY-2 remains on track to support the SEAWOLF program.

Procurement of Combat Control System (CCS) MK 2 and the AN/BQQ-5E sonar system (together known as the "QE2") continues with initial unit installation currently in progress. This system, which will replace obsolete equipment and provide substantial improvement in the tactical capabilities of both 688 and 688I SSNs, will complete development in FY 1994 and commence Technical Evaluation. The development of the TB-29 Thin Line Towed Array parallels the "QE2" efforts and will also complete development and begin technical evaluation in FY 1994. The TB-29 will provide dramatic improvement in towed array low frequency and broad band performance as well as providing significantly improved tactical capabilities. The TB-29 will be used on the SSN 21 class as well as all "QE2" equipped SSN 688/688Is.

Amphibious Ships

Our nation's requirement for flexible, responsive, and immediately available and forward deployed Marine expeditionary and Navy amphibious forces with forcible entry

capability has not diminished. The Navy has embarked on a shipbuilding and modernization program in anticipation of block obsolescence of existing ships to provide requisite amphibious lift into the next century.

The next generation of amphibious assault ships, the LX, is intended to replace the 45 amphibious ships scheduled to retire between now and 2007. The LX must support both the fiscally constrained lift goal of 2.5 MEBs and provide the flexibility to construct Amphibious Ready Groups (ARGs) for forward deployments. The Navy conducted a COEA last year which reviewed a range of 16 options for the LX. These included existing ship programs (LSD, LHD), modifications of those existing ship programs, a number of new ship designs, and SLEPs of existing ships. The COEA showed that the Navy should not replace retiring ships one-for-one. Instead, the most cost effective solution was determined to be a smaller number of medium sized, multidimensional ships with full service aviation capability and over-the-horizon (OTH) assault capability similar to the current LPDs. The Defense Acquisition Board (DAB) approved the Navy's decision in January 1993 and the program entered Phase I Demonstration and Validation Design development with lead ship award anticipated in FY 1996.

Under programs currently in construction, the third WASP Class amphibious assault ship is planned for delivery this summer. LHD 4 will be delivered in FY 1995 and LHD 5 in FY 1996. The option for LHD 6 to Ingalls Shipbuilding was exercised in December 1992. The remaining funds for the program are included in the FY 1994 request. Three ships of the LSD 49 Class, a variant of the WHIDBEY ISLAND (LSD 41) class modified to increase the cargo capacity, have been awarded. These ships are planned to deliver in 1994 and 1995. The fourth ship of this class is currently in source selection.

Mine Countermeasure Ships

Ten of the MCM 1 Class mine countermeasures ships have been delivered. Two more will deliver this year and the last two of the class will be delivered in FY 1994. USS AVENGER (MCM 1) participated in Operation DESERT STORM and was relieved on station by USS GUARDIAN (MCM 5). AVENGER demonstrated that the new AN/SQ-32 minehunting sonar provides significant improvement to Navy minehunting capabilities.

The 12 MHC 51 Class minehunters provide a cost effective modern technology ship intended for a coastal and harbor role anywhere in the world. The Glass Reinforced Plastic (GRP) monocoque hull design provides reduced magnetic and acoustic signatures, shown to be the most important characteristics in reducing risk to minehunters, as well as enhanced performance against shock. We expect to deliver the lead ship in August 1993. Two other ships have been launched and three more are planned to be launched this year.

The conversion of USS INCHON (LPH 12) to a Mine Countermeasures Support Ship (MCS) will be a central part of our revitalized Mine Warfare capability, providing the Mine Warfare Commander with a dedicated platform with command and control facilities configured for improved and integrated surface and air operation. It will also provide maintenance and crew support for MCM helicopters, MCM and MHC class ships, and Explosive Ordnance Disposal detachments.

Navy's commitment to maintaining an enhanced mine countermeasures capability

continues shown in FY 1994 with funding requested for the SQQ-32 minehunting sonar, the SSN-2 navigation system, the SLQ-48 mine neutralization system, and EOD diving systems. New funding is requested in FY 1994 for the SSQ-94 on-board trainer, the A/N 37U-1 moored-mine sweeping system and the integrated acoustic tracker for precise location of towed sensors.

We anticipate maintaining an adequate offensive mining capability through continued procurement of the Mk 71 Target Detecting Device (for the Quickstrike Mod 3 mine system) and OPN funding for support services for mines in the stockpile.

Sealift

The Navy is firmly committed to providing adequate sealift for the sustained movement of United States military forces overseas and has requested \$291 million in the FY 1994 budget for the National Defense Sealift Fund. The outstanding performance of Maritime Prepositioning Ships (MPS), Fast Sealift Ships (FSS), and the Ready Reserve Force (RRF), was integral to the success of Operation DESERT STORM. The Navy is pursuing the acquisition of sealift ships based on the requirements of the Department of Defense Mobility Requirements Study (MRS) (Volume I) issued in January 1992. The sealift component of the MRS called for acquisition of additional sealift capacity through new construction and conversion equal to 20 large, medium-speed (24 knot sustained) roll-on/roll-off ships (LMSRs). The exact size and number of ships needed will be determined during the acquisition process.

There has been significant progress made in the sealift program over the past year. In October of 1992, Engineering Design contracts for conversion of existing ships were awarded to five shipyards; Avondale, Bath, Bender, National Steel, and Newport News. The original plan was to award shipbuilding and conversion contracts in September 1993. While we had hoped to be able to award conversions as early as April 30, it now appears that July is more realistic, still two months ahead of the original plan.

In addition, Engineering Design contracts for new construction sealift ships were awarded in November 1992 to seven shipyards; Avondale, Bath, Halter, Ingalls, National Steel, Newport News, and Tampa. In order to expedite construction of these ships and the conversions, the Navy awarded a contract on March 29, 1993 to MacGregor-Navire(USA) for the central procurement of Class Standard Equipment to ensure commonality among the sealift ships for cranes, forklift trucks, sideport and stern ramps, and container handling ramps.

WEAPONS PROCUREMENT

Tomahawk

The effectiveness of the Tomahawk cruise missile was demonstrated during Operation DESERT STORM and since against Iraq. Our procurement of Tomahawk continues with plans to bring up the inventory to levels necessary to meet our projected needs for several decades. This most successful missile will have thirty percent of the inventory upgraded to the new Block III configuration with the FY 1994 buy. Our FY 1994 budget request is set to procure Tomahawk at a minimum economical rate, while

concurrent efforts are directed at development of a further improved, next generation missile, the baseline improvement program. We plan to procure 216 new build Tomahawks for \$248.3M during FY 1994.

Fiscal Year 1994 will end competitive dual-source acquisition for Tomahawk. We will conduct a winner-take-all competition to choose a single producer and developer for Tomahawk using a competitive down-select. The healthy competition over the past eight years has reduced the missile unit price by 66 percent. We expect the single-up acquisition strategy to yield additional savings over the competitive procurements of the past years due to reduction of overhead costs..

Harpoon and SLAM

The Harpoon Block 1D program has been successfully tested, but there are no plans to fund a Block 1D retrofit (MOD) program for the existing Harpoon inventory. The Block 1D reattack software is being incorporated in an upgrade to the Block 1C missile, culminating in a low cost approach to improving Harpoon tactical performance. This modification begins in FY 1993 and continues through FY 1998 using funding reallocated within the existing program budget.

SLAM production continues in FY 1994 with \$98.4M budgeted for 75 missiles. SLAM shares many Harpoon components, hence SLAM procurement costs benefit from common technology. Sustaining Foreign Military Sales (FMS) rates for the Harpoon weapon will continue to favorably influence SLAM costs.

HARM

Our HARM inventory was rounded out with the final procurement of 749 missiles during FY 1992. Upgrades to 624 AGM-88A missiles through a retrofit program is planned during FY 1994. The \$98.7M upgrade program will improve the missile's guidance section and software, further enhancing their operational effectiveness. The upgraded missiles will be designated as AGM-88C models.

AMRAAM

The FY 1994 AMRAAM procurements continue as a joint Navy and Air Force program. The Navy reduced its portion to 44 missiles, resulting in a minimum sustaining rate for the two contractors. This action along with adjustments to the remaining FYDP quantities will appropriately align the procurements and requirements.

Helicopter Munitions

Helicopter munitions are critical in providing Close-In Fire Support (CIFS). The Advanced Rocket System (ARS) is being developed as the "neck down" replacement for the 2.75" and 5" rockets. The concept is to field an inexpensive, highly flexible, weapon in quantities which allow sustainability. Another critical improvement to existing anti-armor weapons will be the fielding of Hellfire II. Hellfire II is an enhanced Electro Optical Counter Measure (EOCM) capable, direct/indirect fire, long-range, precision guided munition. These weapons, coupled with the Cobra Night Targeting System (NTS), will

modernize our Marine Corps attack helicopter community into the next decade.

Sonobuoys

FY 1994 begins the first year for transition of sonobuoy procurement from the OPN account to the Defense Business Operations Fund (DBOF). All sonobuoy programs emerging from development will continue to be funded for two years out of the OPN account to allow for a smooth transition to the pull-type requirements generation of the DBOF. The AN/SSQ-110 sonobuoy will complete OPEVAL in FY 1993 and begin procurement in FY 1994 with \$13.0M of OPN funds. This sonobuoy is the source for the Extended Echo Ranging (EER) system, and will provide for the first real airborne active acoustic search capability. In addition to the EER sonobuoy, the AN/SSQ-53E DIFAR sonobuoy will also be procured in FY 1994 with \$14.6M of OPN funds. This sonobuoy has been improved from the previous "53D" model by the incorporation of a significantly increased frequency response.

Torpedoes

The MK 48 ADCAP torpedo program will complete all up round procurement in FY 1994 with the award of 108 torpedoes which will close out a three year Multiyear Procurement. In future years we plan to shift procurement to modification kits for backfit into the existing ADCAP inventory. These modifications will provide for quieting of the Torpedo Propulsion Unit (TPU), and upgrade of the torpedo Guidance & Control (G&C) unit to provide for state-of-the-art computing capabilities that will allow for the incorporation of significant shallow water weapon improvements.

In surface and air-launched torpedoes, the MK 50 torpedo production line will close out and the technology will be placed on the shelf. Although this action ceases surface and air launched torpedo production in the United States, there will be some maintenance of the industrial base through modifications to the MK 46 torpedo. The MK 46 Service Life Extension Program will protect the weapon from block obsolescence and may provide some new capability which would improve its performance in shallow water. Additionally, we will continue with procurement of Vertical Launch ASROCs at an affordable rate. These procurements will, within the limits of the budget, provide the surface Navy with the ASW weapons needed for littoral warfare.

Development and procurement of new Submarine Defensive Warfare Systems is continuing to provide acoustic countermeasures against both active sonar and acoustic torpedoes. Full production of the torpedo countermeasure ADC MK 2 MOD 1 has commenced. The follow-on advanced torpedo countermeasure ADC MK 3 will enter production in FY 1994, along with an advanced sonar countermeasure, ADC MK 4.

With the cessation of procurement of MK 48 ADCAP torpedo all up rounds after FY 1994 and FY 1993 being the last year of MK 50 torpedo procurement, maintaining the U.S. torpedo production industrial base becomes an important issue. I have directed the Program Executive Officer for Undersea Warfare to examine this issue and give me his recommendations for maintaining the critical portions of the torpedo production technical and industrial bases.

TRIDENT Missile Program

As a result of the end of the Cold War, substantial reductions in the inventory of strategic weapons have been made, including the TRIDENT missile programs. D-5 inventory objectives, annual procurements, and flight tests have been reduced. The procurement of only 24 missiles is proposed for FY 1994. The lower inventory objective and procurement rate will cause an increase in unit cost due to allocation of fixed procurement, development, and construction costs over a smaller quantity of missiles. TRIDENT D-5 success has allowed early termination of the CINC Evaluation Test (CET) and reduction of the Follow-on CET (FCET) Program (6 vice 16 missile per year). The Navy report in response to the FY 1993 DoD Appropriations Act (Section 9134) will address the alternatives of continuing the TRIDENT II missile production versus refurbishment of TRIDENT I missiles.

Surface-To-Air Missiles

The Navy has restarted and expanded the Rolling Airframe Missile (RAM) program in the FY 1994 budget. A cooperative production program with Germany, RAM is being integrated into the Mk 1 and Mk 2 Ship Self Defense System (SSDS) configurations, as well as through the Phalanx search radar on ships without SSDS. A Milestone III decision in support of procurement is imminent. The FY 1994 procurement rate request of 240 missiles is a minimum sustaining rate. Launchers are being procured for LSD-41, DD-963 and FFG-7 (CORT) ship classes.

Medium and extended range STANDARD (SM-2) missiles continue to be a critical element in anti-air warfare in all threat scenarios. The SM-2 Block II is deployable on all New Threat Upgrade (NTU) and AEGIS ships, both cruisers and destroyers. The SM-2 Block III and IIIA will be deployed on NTU and AEGIS cruisers. The FY 1994 program funds production of 220 Block IIIA missiles. This represents a reduction of 410 missiles from the January 1992 President's Budget reflecting budget reductions over the past year. Block IV production has been deferred to FY 1995 because of flight test program delays.

Command and Control

The President's Budget for FY 1994 OPN requests \$44.6M for year three procurement of 26 EMSP units under the Congressionally approved Multi-Year Procurement contract. This figure will be adjusted to the original fully funded amount of \$46.6M.

Planned phase upgrades (OPN/SCN) of Fleet Satellite Communications radios, antennas, and information exchange systems in FY 1994 include the UHF AN/WSC-3(V) radios, OE-82(V)/WCS Antennas, Tactical Information Exchange Systems (TADIXS), and the Officer in Tactical Command Information Exchange Systems (OTCIXS).

In FY 1994, the Navy will acquire 4 SHF terminals (OPN) terminals under its existing contract and expects to release a Request For Proposals for its Next Generation SHF Terminal. These terminals will provide high data rate, low probability of intercept

communications to battle group forces and fleet commanders.

The Navy EHF Satellite Program (NESP) has entered full production and will acquire 63 (58 OPN/5 SCN) Milstar compatible terminals under its current contract which expires in FY 1994. Program plans in FY 1994 include the completion of on-orbit Milstar satellite to terminal compatibility testing. Terminal deliveries under the succeeding contract will not begin until 1999 and are expected to be appreciably more expensive.

As a result of the failure of its Atlas launch vehicle, the first UHF Follow-On (UFO) satellite will not be able to reach its intended geosynchronous orbital position and has been declared a total loss. Congressional approval will be required for the Navy to apply the \$138M in contract remedies toward the acquisition of the replacement satellite required if the JCS requirement for 9 satellites on orbit is to be met.

In FY 1994, the evolutionary acquisition strategy for the Navy Tactical Command System-Afloat (NTCS-A) will continue with the procurement of eight carrier/amphibious/command level systems. In addition, the second Fleet Mobile Operations Command Center (FMOCC) and Mine Counter Measures C3I vans 2 and 3 will be built. NTCS-A will be enhanced with the installation of a Survivable, Adaptable Fiber-Optic Embedded Network II (SAFENET II).

The Advanced Tactical Air Command Central (ATACC) will replace the existing Tactical Air Command Center and provides a critical joint interoperability node for naval expeditionary aviation functions.

Communications Security (COMSEC) for the Navy and the Marine Corps will be improved in FY 1994 by the procurement of secure voice, secure data, and key management components. Over ten thousand low cost secure telephones (STU-III) will be added to the approximately 53,000 units already fielded. An additional 2600 ANDVT MINTERMs will be procured for the Marine Corps to provide secure voice/data communications in a tactical manpack using a self contained terminal with embedded COMSEC.

CONCLUSION

Naval acquisition is undergoing a period of adjustment to conform to the revised defense requirements of the nineties, while attempting to preserve the ability to meet the needs of the next century. The technological edge that the Navy and Marine Corps enjoy today is a result of past investments in building and equipping the fleet with capable and potent platforms and systems. With the support of Congress, the Department of the Navy will continue to invest judiciously in affordable aircraft, ships, and weapon systems in order to build and preserve the capable, technologically advanced fleet that projects American influence and safeguards American interests around the world .

SEALIFT PROGRAM

Mr. MURTHA. Let me start with sealift because I have been, as you know, in the forefront in trying to get the Navy to do something about Sealift. We have run into one problem after another.

As we reduce our forces overseas, obviously we are going to have to have the availability of ships here, as we found was necessary in the Saudi Arabian deployment. The ships that hadn't been exercised, we had problems with. The SL-7 ships seemed to work fairly well. I think there were one or two ships we had problems with during deployment.

But certainly if we are going to try to meet the schedule we met at DESERT STORM we need more sealift. According to CINCENT, he doesn't think we could meet a deployment in the same time period. I have talked to a number of people in the service who agree with that now.

If we are going to pull troops back to the United States, we are going to have to get more of them overseas during crises, so sealift becomes essential. When General Powell took on this project himself, I felt it was not only moving in the right direction, I thought we would have a lot fewer problems. Now I see we have a three-month delay.

What is the delay and can we expedite the technical procedures that we have to overcome to get this thing going?

Dr. WHITMAN. We certainly applaud the initiative of the National Defense Sealift Fund. That is the key to providing new and improved equipment. There have been delays, occasioned by the necessity of satisfying DOD with the mobility requirements study which in fact was completed about a year ago, and the preparation of specifications for the ships that we want to acquire. We plan to construct about 12 ships whose IOC would be 1997 and convert up to perhaps seven ships with an IOC of 1995. We attempted to do that on a fast track.

We hoped to award those contracts by the first of May. However, when we received proposals from the offerers, five of them, there were sufficient, serious technical deficiencies that awarding contracts on that basis would have left the government and those shipbuilders at great risk in delivering something not of use to us.

There were very serious deficiencies in the nature of incorrect draft calculations, which is important for determining which ports ships can get into; electrical generating capacity; and turning radius for example.

For us to go forward in the face of what we felt were serious questions about the viability of the ships offered us required that the Navy, as responsible purchasers, go back to these offerers, ask for clarification, and delay award until 31 July.

This morning I spoke with Admiral Malley, the Commander of the Naval Sea Systems Command, and asked him about the possibility of accelerating that process. He feels that would create serious risk for the Navy and for the Government. We are moving forward as quickly as we can, as responsible spenders of the taxpayers' money.

I will note that the contract for Class Standard Equipment; for example, ramps, forklifts, trucks, cranes and similar items intend-

ed to be standardized across the class of Sealift ships, was awarded last month. MacGregor Navire USA was the low bidder. I think we are moving forward at a pace which is substantially accelerated compared to our usual practice for awarding ship contracts.

Mr. MURTHA. You are not going to be able to reduce the three-month delay period?

I assume somebody is working this. That is not something that is getting shoved aside. I understand there are legitimate problems and it sounds like the type of technical things you talk about that need to be taken care of.

Is somebody trying to solve the problem? Are they out working to try and get this thing on track?

Dr. WHITMAN. This is a seven-day-a-week proposition for the Naval Sea Systems Command. Part of the difficulty lies in the necessity of providing the offerers' a reasonable amount of time to redo their offers and provide a best and final offer. We have asked if they would minimize the time they require for that. We are awaiting answers on that.

Mr. MURTHA. Do you anticipate the same kind of delay with new construction contracts?

Dr. WHITMAN. We see no delay there. We are dependent upon the quality of the proposals we receive. If there are serious questions, we have to address them.

Mr. MURTHA. What do we get for the \$291 million requested in fiscal year 1994 for the Sealift Defense Fund?

Dr. WHITMAN. That would be added to the corpus of the funds for procurements of this type in the future. We don't know until we receive the bids how much this is going to cost us.

MARITIME POLICY

Mr. MURTHA. A reporter was in to see me two or three days ago and brought up something that if I were aware of it I had forgotten about it. He was talking about the maritime policy which is being developed by the Secretary of Transportation which would cost \$5 billion which they expect the Defense Department to pick up. Have you been coordinating your effort with them and are you aware that it is \$5 billion and do you have any part of that at all?

Dr. WHITMAN. Hitherto, my only information has come from trade publications. We are participating in the interagency working group on Sealift and on increasing commercial shipbuilding.

The representation for the Navy is provided through the Office of the Secretary of Defense. I have nothing specific on the initiative, sir.

Mr. MURTHA. So there hasn't been the degree of coordination that we really need to follow through on this policy. I assume the Defense Department is going to be called upon to participate in some way.

I am a little concerned that we are going two directions here. I haven't seen the coordination yet. Maybe they just haven't sent it over for consultation yet. It worries me that the Navy, which is such a big part of this overall policy, hasn't heard about it.

F/A-18 E AND F AIRCRAFT

Last year, if you remember, I was the person who insisted we go along with the Navy over the objections and the difference of opinion of the Armed Services Committee with regard to the F/A-18 E and F program.

Because of that, we funded the F/A-18 E and F rather than jump over it and go to the A/X. I am concerned that maybe we are going in the wrong direction, and I was saying to the Secretary, "Let's look at the C and D and let's see if we can't get by with the C and D."

Talking to the troops out in the field, they are concerned about an all-weather fighter or all-weather bomber. I know you plan to get rid of the A-6, you've got all kinds of aviation problems, but what does the E and F give you? Does that give you an all-weather capability?

Admiral OWENS. Mr. Chairman, it might be of interest, if you wish, for me to talk generally about how we see the E and F and the A-6 and the F-14 coming together as a group

Mr. MURTHA. Fine.

Admiral OWENS. This has been a decision that has been made with thousands of hours of discussion and we feel confident that we are on the right track with the approach that we have taken.

I have personally given, as well as within the Navy and Marine Corps, an immense amount of attention to the issue of the A-6.

From our experience with the airplane, it has been a marvelous airplane in years past, but the other sense is that by 1998, this is not the best airplane that can best serve us. We have very low maneuverability in kinetics for avoidance of any threat, whether aircraft or SAM batteries.

That airplane, in 1999, will be an average of almost 26 years old. The airplane is a good all-weather nap of the earth bomber, but our sense is that in the uncertain environment that we face in the future, we are better served by an airplane with more maneuverability and more capability to operate in a multi-mission role so that our bombers and fighters can go both ways. Then we would not be as specialized as we are with the A-6s.

We think with standoff weapons, with systems of standoff weapons centered in the future, that we have the ability to project power in ways that are precise and accurate, and that we can do it more effectively with the F/A-18 E and F. We think that airplane is our first priority for naval aviation.

We think you were right in pushing us in that direction. We are committed to the F/A-18 E and F as the aircraft that will take us through this period of time from its IOC in 2000. It will have a good multi-mission capability for bombing and for air-to-air combat, through the next 20 or 30 years.

That decision has allowed us to save a lot of money in our budget at a time of great difficulty. It is hard to total up the infrastructure, training, contractor costs necessary to keep the A-6s going, but we think it is well in excess of \$3 billion over the 6-year program. This has not been an easy decision, but as a father of a son who is at the Naval Academy and is seriously considering joining the aviation community, I would, from my Sixth Fleet experience,

much rather have him in an F/A-18 E and F with the technical capabilities and the standoff that is inherent in that airplane, than I would have him flying nap of the earth missions in an A-6 into any conflict that I can imagine in the future.

Our decision has been a difficult one, but we think this is part of the affordability of naval aviation. We think we have to get on with a program that is affordable and proficient.

We think the F-14 is an important element as a gap filler. It has had an air-to-ground MK-80 series bomb capability developed in the last few years. It is not a precision weapon platform but it is a good bomber, can fly 600 miles and can drop gravity bombs. It is a capability that we are fostering in all of our F-14s.

With this decision on the A-6, we have also made a decision to make the F-14 a very limited precision bomber; that is to incorporate the ability to drop laser-guided bombs (LGB's) from the F-14. That requires a laser pod. It is a pod just like the one we will put on the F/A-18 C, D, E and F. With that laser pod, the LGB's with their great accuracy, about _____ accuracy, and any of the MK-80 series, 2000-pound bombs can be put on target very accurately.

The F-14 will not have a nap of the earth capability but it has an all-weather capability and the kinematics and speed to avoid SAMS and enemy fighters. The measure of maneuverability and kinematics, Specific Excess Power, for an F-14 is 700, for an A-6 about 100.

The speed is supersonic. For the A-6, it is way subsonic. We are confident that this ability to have a limited number of F-14s with LGB capability able to go 600 miles is a valid bridge for us until we get to an A/F-X capability.

We will take the community from 400 airplanes down to an effective force of 210 F-14s. That saves well over a billion dollars. When we take the size of the force down, we will put the limited laser-guided capability on the F-14, which will cost about a billion and a half dollars.

The net is a few hundred million dollars, \$400 million or \$500 million difference to give us this capability and will give us one squadron of F-14s per carrier. That leaves us with carrier decks that have F/A-18 C's and D's followed by E's and F's, all of which are multi-mission aircraft. We think that is important when we are not sure what the threat will be, whether it will be a Somalia or a DESERT STORM.

We think that multi-mission capability is very important. We are serious about support of the Marines in the battlefield, which can be effectively done with the F/A-18 E and F with its extended cycle time. This mix of multi-mission capabilities we think is in line with "... From the Sea" littoral warfare, the marriage of the Navy and the Marine Corps, and we are satisfied that we have done the right thing in an affordable way.

Mr. MURTHA. The legs on the F/A-18 E and F will be longer until you start filling them up with equipment. Then you will end up probably with a lot better airplane, but not much more legs. Do you see that happening? Last year or year before it wasn't a new airplane. Now it is a new airplane. I think you have to admit we are talking about a new F/A-18 here. It is going to be bigger, but it is going to be filled up with more equipment.

As I understand, the FA-18 C and D is filled up. That means obviously putting more weight on it. You are going to lose some of the distance.

Now, the F-14, how long do you anticipate it is going to be there and what about the tanker? Are you going to keep A-6's for tankers or is the F-14 going to be the tanker and what is the all-weather capability of the F-14 with the laser-guided bombs or whatever you are going to finally put on it?

Admiral OWENS. Mr. Chairman, concerning the subject of the F/A-18 E and F range, we are quite confident that this is going to give us adequate range but frankly, we look at it not so much as range as the stay time, the cycle time.

We are really focused on the battlefield, on the littoral, and the ability to have a cycle time in excess of two hours from the carrier is important. It can be translated to range and we are satisfied that the difference between the C/D and E/F, even when the E/F has additional pieces of electronics, which it will have, makes it significantly different from the C and D.

Mr. MURTHA. What is the difference in cycle time there?

Admiral OWENS. The difference in cycle time will be about 30 minutes, which is a significant element. It goes from a C and D about an hour and 35 minutes cycle time to well over 2 hours with the E and F.

Mr. MURTHA. With a full bomb load?

Admiral OWENS. Yes, sir. The F/A-18 E and F will have the capability to bring expensive new weapon systems back to the carrier and that is really important to us. New weapon systems, like TSSAM in the future, SLAM or SLAM P3I, which is a very impressive weapon, will not have to be jettisoned just because you can't land the airplane on the deck with the weapon. The E and F will have the ability to do that. The range difference, if you want to talk pure range, in the loaded configuration between E and F and C and D, will be about 150 miles. It is important to remember with E and F that it will—

Mr. MURTHA. That is 75 out, 75 back?

Admiral OWENS. No, sir. That is the total distance you can go.

Mr. MURTHA. You are talking about 300 miles then?

Admiral OWENS. Well, a good comparison I think would be that unloaded with just the air-to-air configuration, a couple of AMRAAM and Sidewinders, that the C and D would probably be in the area of 270 miles, be able to fly out 270 and back 270 miles. The E and F should put us out to about 420 miles, so we can fly out 420 and return to the carrier.

In a fully loaded configuration, on the E and F, we should have the ability to have as many as three tanks depending on how many bombs you wanted to deliver and whether they are LGB's or SLAMs or TSSAMS. You can put either 330-gallon or 480-gallon tanks on that airplane. For example, with an acceptable weapons load of MK-83 or MK-84 bombs, and with two 330-gallon tanks, you will have a strike range of about 450 miles.

That is significant for us and that is unrefueled. We think that that ability is a great improvement over the C and D and is something we must pursue.

The tanking issue is one that has been discussed widely with us. We said in "... From The Sea; that we are committed to jointness, and what we found in the Gulf experience was when we needed tanking from the Air Force the tankers, the KC-135s and KC-10s, were there.

When I was Sixth Fleet Commander, we flew the three carrier wings of aircraft out of the Red Sea into Iraq. There too, Air Force tankers were available for us. So we think Air Force support of Navy TACAIR, when it is necessary, is something we can depend on.

The S-3s will continue to be tankers for us. That is important for an overhead tanking capability, because if you can't get the F/A-18 off the deck, it is important to have that overhead tanking ability. The S-3s will continue to be a very important part of that capability. Notably, the F/A-18 E and F does have the ability to have tanks, either 330-gallon or 480-gallon tanks and with those tanks will come a buddy store capability not unlike the A-6E today where an F/A-18 E and F can refuel another from his buddy store. So we have flexibility in the package to take care of tanking.

There has been endless discussion in the fleet about this. I am not an aviator; however, I can tell you that the decisionmakers in the aviation community are fully on board with this plan which includes an ability to continue to have a deep strike mission if that is what is required. The plan also includes multi-mission aircraft in support of the battlefield, which we think is important, with the cycle time to manage it and tanking assets that are necessary to this mission.

Mr. MURTHA. My predecessor always felt that the F/A-18 didn't have enough range and he argued vigorously against it because of that. I think it certainly works well as long as we get in close. We worry about these missiles, the possibility of stealth-type cruise missiles and so forth. We have some great concerns and of course now with Iran having a feasible submarine capability, again stand-off is going to be so important, and we all know when you don't have stealth what you have to have and tankers, of course, add so much to the vulnerability if you have any kind of opposition.

Obviously it is a different world where we don't see the kind of opposition we have to take out. It sounds like you are saying as long as we have air superiority, we are fine.

If we don't then, we have a problem if it is too far out.

Admiral OWENS. Yes, sir. The way we have been gaming this problem is to try to look at those scenarios and try to envision the ways in which we, in the future, independent of the number of initial bases you have to allow our sister service Air Force aircraft to fly from in the immediate area, should be able to open the door for American forces.

We are buying airplanes and ships and amphibys today to support our country 20 or 30 years in the future. We think we need to be able to establish air superiority and we think we can do that with this kind of a Navy and Marine Corps.

We have given up ships in our long-range plan, ships and aircraft, so that we can maintain the power projection capability of the Marines in the form of these amphibious ships, making sure we have the newest and best equipped. We have also done this so that

we can maintain the size of the Marine Corps, keep the carriers with aircraft and weapon systems on them, and keep our power projection capability and the air superiority that capability includes.

Mr. MURTHA. It sounds good. We keep finding there is less and less available and if you keep the same tempo of operations, I see an erosion of quality.

Mr. DARDEN.

P-3 AIRCRAFT PROGRAM

Mr. DARDEN. Thank you, Mr. Chairman.

I want to direct your attention to the P-3 program. I understand that currently you plan to replace all the P-3 B's with C's. Is that correct and is it about 27 aircraft that have to be replaced to make the model P-3C's?

Dr. WHITMAN. I understand that our goal is, in fact, to have the entire force in the P-3C configuration.

Admiral OWENS. Our plan is to take all the P-3 A's and B's out of service. This has not been fully approved. We are doing the bottom-up review in OSD now and are working closely with the new administration on this. The Navy plan for long range is just to go to P-3C's.

Mr. DARDEN. What is the difference in capability between the C as opposed to the A and B?

Admiral OWENS. We have 247 P-3C's today, and if you allow me to just give you a little background on why we made that decision, that will lead into comparison of capability.

The P-3C in an Update III configuration is what we think we need for a surveillance and ASW aircraft in the world we face today and in the long term. We have found in maintenance of our aircraft inventory, the affordability issue is that we can't fit all of the programs that we have into the budget, especially with a decreasing budget. So, common type model series is a way to save disproportionate dollars, meaning to get rid of a type, for instance, the A-6 aircraft or a series—that allows us to take infrastructure and training and contractor services as well as the aircraft themselves.

So we will take down about 200 P-3 A's and B's to do this. The C is an important capability. It gives us the ability to use ASW capabilities. They include a couple of new and very important sonobuoys, including the SSQ-110, which for the first time in many years will give us a very effective capability for active detection of submarines from a P-3.

In the last 30 years, we have concentrated on passive sonobuoys and passive detection; the detection of the broad band or discrete frequency band from enemy submarines.

Now we will have the ability to be active, actually pinging from the sonobuoys and getting a response back from an enemy target. With the P-3C Update III, we will have the ability to use SSQ-110 and the 101 sonobuoys. That will be a great improvement in our ability, especially against quiet submarines, particularly against diesels.

The Update III will have the ability to use two very important covert programs. You need an Update III capability to do that,

and off-line I would be pleased to talk to you about those two programs.

It is an efficient way to bring real capability to our country in the long term, to take full advantage of the technology and to provide a program that we can recapitalize and support for the long term.

It has been a very difficult situation for us, but we think this is the best thing to do. It brings us the full embodiment of capabilities our fleet commanders wanted and we can maintain that even at reduced budget levels.

Mr. DARDEN. How many A's and B's then will we have which will be replaced?

Admiral OWENS. We replace no A's and B's. We have 247 P-3C's and intend to take care of and outfit them with modern technology.

We will not build any new P-3C's or replace A's and B's. Presently we have eight aircraft per squadron. There is a requirement for a training air squadron and aircraft to be in maintenance. We think we can imagine more efficient ways to allow us, with this total force of 247 aircraft, to maintain approximately the force structure that we have with those 16 active and 9 reserve squadrons.

Mr. DARDEN. But do we have A's and B's now?

Admiral OWENS. Yes, sir; we do.

Mr. DARDEN. How many?

Admiral OWENS. About 450 total P-3's, so I guess it is 450 minus 247, that is about 200 A's and B's in the inventory today that will be taken out.

Mr. DARDEN. As you know, going to another branch of service and another requirement, a lot of these P-3's have been used by Customs and other Departments.

Has there been communication between Customs and the Navy about utilizing those aircraft for that purpose?

Admiral OWENS. Yes, sir. We have talked to Customs. They do use a lot of these airplanes. There are P-3 variants with radar antennas. Lockheed makes a nice aircraft. These could be modified to do that. They will be made available as they come out of our inventory for Customs or for other national agencies to use.

They are in great demand by our allies. In FMS, they can be of great value to our allies because especially the B's have a lot of service life left.

Mr. DARDEN. Some have fewer hours than some of the C's we have in inventory today?

Admiral OWENS. Yes, but there is no comparison. As a series, the C's have far fewer hours than the B's. If you are going to save money, it is necessary to make a retirement decision. We cannot afford to keep various series going and keep contractor, infrastructure, and training organizations going to support multiple series.

You will find some of the C's have more hours than some of the B's, but in general, there is no comparison of the total hours.

Mr. DARDEN. I recall several years ago that the Navy had proposed a P-3 replacement—the P-7. That was canceled completely; is that right?

Admiral OWENS. Yes, sir. That was cancelled completely. It was an affordability issue. It also forced us to take a look at the longevi-

ty of the P-3's we have. We intend to have a force that we are able to maintain to make sure that the corrosion control, the engine maintenance, the total hours are managed in a way that they need to be to allow us to maintain this force for the long term.

We would like in the future to look at a follow-on aircraft for the P-3. That eventually will become necessary, but we think we are just fine with this airplane for the next 15 to 20 years.

Mr. DARDEN. That answers the question. I believe there was R&D money as well as procurement money requested; is that right? How are you dividing up the request between R&D and procurement?

Dr. WHITMAN. We have a procurement program for \$214.3M in FY 1994 intended to provide upgrades to the P-3C fleet.

The number that I have for RDT&E is about \$15.1 million in fiscal year 1994. We have embarked on what we call a sustained readiness program intended to rebuild the airframes of approximately 193 P-3's to extend their fatigue life, so we will be able to maintain the force to 2006 or so.

Mr. DARDEN. Is this a SLEP?

Dr. WHITMAN. Not in the usual sense. It is a safety of flight consideration to make sure that fatigue and corrosion are being properly compensated for and new material put in where necessary.

Mr. DARDEN. Is this shipping them back to the factory—

Dr. WHITMAN. I don't know. I can get the answer for you, sir.

[The information follows:]

A full and open competition with both public and private participation will be conducted in FY 1993 for this effort. The winner of the competition will determine where the actual work will be performed.

Mr. MURTHA. Mr. Young.

SHIP FORCE LEVELS

Mr. YOUNG. Mr. Chairman, thank you very much.

I would like to change the subject to shipbuilding. When President Reagan began to rebuild the military, he set the target of a 600-ship Navy, and we were all committed to that. That has, obviously, been changed. What is our goal now? Where do we plan to end up as far as our Navy is concerned?

Admiral OWENS. As you know, the Joint Chiefs had established a base force which was a Navy of about 450 ships and 12 carriers. It has been apparent to us as we have looked at the prudent management of resources in our FY 1994 budget and the FY 1995 to 1999 plan that that is not affordable. That 450-ship Navy had 12 carriers in it. It has 11 major amphibious ships. Those are very important, we think, because of the importance of power projection, and we intend to do whatever we can to maintain those 12 plus 11.

[CLERK'S NOTE.—Subsequent to the hearing, the following information was provided:]

We need to ensure that amphibious lift is structured to meet CinC requirements. The Vice Chairman of the Joint Chiefs of Staff and the Joint Requirements Oversight Council (JROC) have re-validated the requirement for 12 Amphibious Ready Groups (ARGs) built around 12 amphibious big decks. LHD-6 will bring us to 11 big decks. We need LHD-7 in order to fully support the CinCs' requirements and should consider exercising the existing option for it. The Marine Corps recognizes this is an affordability issue but, it won't get any cheaper by waiting. Additionally, if we are to overcome Block Obsolescence early in the next decade, it is critical for the LX program to start in FY96 as planned. We can't afford any delay.

The Navy has had an in-depth look at a force structure working with the Marine Corps to allow us to see where we can go and what we can recapitalize and maintain and keep ready. We have done that drill at Quantico, at Newport, and in the Pentagon, and we have a plan that we think is affordable. We are working with the new administration in the bottom-up review to show them this plan and to give them the numbers in each category.

We are confident that we have a plan that is capable. It is significantly less than 450. You see the beginnings of some of the cuts in our FY 1994 budget. They have not been finally approved for the long term by the new administration, but they include things like canceling the overhauls of nuclear cruisers. We will take all of the nuclear cruisers out of commission by the end of this century.

It recommends taking the CG-16 and CG-27 class cruisers out. You see a couple of those being decommissioned in our FY 1994 budget. It also takes the FF-1052 class frigates out of our line starting in FY 1994.

All of those cruisers and frigates will be out of our force by the year 1999 according to the Navy plan, along with two conventional carriers. That allows us to then get out of the 1,200 pound steam business. We think that is an important consideration for affordability and our ability to continue to maintain a force that matters in a ready way.

The 1,200 pound steam plants are complicated, have been somewhat unreliable, have required a lot of infrastructure and training, and we can take all of those ships out and maintain the real capabilities in our Navy which, thanks to this committee and others, has given us some tremendous technology in the form of the DDG-51 and the CG-47.

So we are coming down in size. I prefer to let the new administration give us the final number. It is in hot debate in the Pentagon now, and we are participating actively. I think the new administration is listening carefully to what we have to say.

SHIPBUILDING COST GROWTH

Mr. YOUNG. I would still be very supportive of aiming toward a 600-ship Navy because I think the need to be able to project our force probably is even increasing beyond what it was. Those of us who believe that way, have obviously lost that battle.

Whether it is 400 ships or 450 ships or whatever it is, I see several problems. One is, as we reduce shipbuilding, we eliminate our industrial base and our capability to surge if that becomes necessary. And I think that would be a concern of the Navy as well. Because if you are not building enough ships you are not going to be able to keep shipyards alive. There is something wrong in the Navy shipbuilding program.

Let me look at a couple of points here. As of the end of fiscal year 1991, the potential cost for completing 165 ships under 54 contracts was 24 percent—\$6.4 billion—higher than the initial contract target costs of about \$27.1 billion as estimated by the GAO. As in the past, the SSN 688 class submarines accounted for the largest portion of the increase—about 41 percent.

As of July 1991, the Navy had agreed to settle claims of \$309.8 million. The AOE 6 program accounted for about \$239 million of that total. As of February, 1992, about \$349.7 million in additional claims were pending resolution.

The fiscal year 1992 appropriation bill provided \$465 million for escalation on prior-year shipbuilding programs and transferred \$1.5 billion for other ship construction cost growth.

Specifically, since fiscal year 1989, we have transferred into the T-AO program \$315 million. We have added over \$350 million to the AOE program plus \$239 million in claims settlement. And we have added over \$300 million to the DDG-51 program, plus claims settlement of between \$60 and \$90 million.

These are just the highlights of the list. We have made the money available, and you have been getting the ships delivered, but it seems to me there is something wrong when every time we decide to build a ship and enter into a contract we can't build it for what we think we are going to build it for, and we end up always in battle with the contractor, and he ends up suing us.

Is there something generically wrong in the shipbuilding business? Is it the industrial base's fault? Is the Navy at fault? Is this committee at fault?

This committee has taken a lot of criticism in recent months, specifically, the Chairman of this committee and the Chairman of the committee in the Senate in the public media, because of some of these problems.

What is happening? There has to be a way to get into a shipbuilding contract and know what it is going to cost or be able to get along with the contractor. Or do we need to change contractors? Do we need to change procurement people?

I don't know, but there is something wrong when figures like this are stacking up. I say this as one who is probably as good a friend as the Navy has in Congress.

Dr. WHITMAN. Specifically, there have been a number of fairly easily identified factors that have led to this. Certainly, the drying up of the demand for ships has caused the remaining shipbuildings to bid extremely competitively and in some cases to underbid.

In fact, the industrial base is drying up, and much of the vendor base, in which competition used to be available, is reducing to a sole-source situation. Only 5.8 percent of combat system equipment right now is available from multiple sources.

Often, these changes take place between the time money is appropriated and ships are built, and unanticipated costs become possible.

I believe we are doing much better in recent years. I think, for example, the DDG-51 program has been a model to us for coming in within schedule, within cost. In our later flights of the DDG-51, we are, in fact, predicting diminishing costs.

In many cases, contracts were negotiated on the basis of options that were available for many more ships than we ultimately were able to afford. As the amortization of cost is spread over fewer and fewer delivered ships, the price increases.

It is a problem shared between the industry and the Navy, and we are both suffering from it, sir.

Mr. YOUNG. I hate to get into personalities, but I wonder if that is the issue. One specific case called to the attention of this Committee, last year—and the Chairman personally went to an on-site visit with the Under Secretary of the Navy to try to figure out what was happening in this particular case. It was a case where we were being asked to provide additional funds. The Supervisor of Shipbuilding wouldn't even be there with the Chairman. He was, obviously, miffed because he didn't like what was happening in the first place. He wasn't happy that the contract came into his area of responsibility, and he ignored the Chairman. He wouldn't even show up.

We got the feeling—maybe we were a little bit personally affected by it, but we were offended that the Supervisor wouldn't come in and be part of the conversation. We were trying to iron out some problems, and eventually problems got ironed out.

There is something wrong in Navy shipbuilding. Obviously, you think it is getting better. I am not sure it is getting better.

ARROGANCE IN THE NAVY

Mr. MURTHA. I have seen arrogance in the Navy, which in my estimation, is not seen in the other services.

For instance, the Supervisor of Shipbuilding did not show up for a meeting and there was some feeble explanation of what else he had to do. This is not the first example that we have found. We have been hesitant to criticize the Navy publicly, but not only in shipbuilding—they wanted to build a building in Crystal City, and we felt it was out of line, that while we were downsizing we certainly didn't need to spend \$250 million building a building. We had to practically order that the building be stopped. We finally did withhold money and go to GSA and stopped the building from being built. It was the right decision because the Navy has decided to move people out of this area or use leased space.

I don't know who we can blame, but it is frustrating when you see figures like this. I know there are definitional differences between what GAO says and what the Navy thinks.

I cut out a couple of spaces last year because I felt that the civilian GS levels were absolutely unaffected by what we felt were legitimate orders by the Committee on what needed to be done. So, you know, we would hope that the Navy would pay attention to what we are saying. We all want to do the same thing.

I was pushing sealift for years. We got nowhere with it until General Colin Powell took an interest.

There are all kinds of examples of how recommendations by the peoples' representatives have been ignored because of the arrogance of the Navy.

I saw this a few years ago when I went to Annapolis, and the valedictorian happened to be a woman, and they booed her. I resigned from the Board of Visitors at that time because I felt the booing was so inappropriate. Ever since then, I have tried to get improvement in the relationship between men and women at the Academy and couldn't get it done until, unfortunately, it culminated in the incident of Tailhook. I see improvement, a camaraderie that developed because there was leadership inserted.

I hate to cite the Tailhook thing, but I think that is another example of the arrogance of some parts of the Navy.

When you see figures like Mr. Young brought up, I agree we have had lots of problems about misunderstandings and what needs to be done.

A couple of years ago, they came to us. We had to bail out a San Diego shipyard for \$200-some million. We did not want to push to get it done prematurely. I know you are under competitive pressure to take low bids, but we have got to find a better system so when these people bid they are responsible for their bids.

It is very difficult for us to turn down a Member of Congress representing his area when he knows every shipyard is following the same procedures, having overruns. It costs all kinds of money for us to go through the legal procedures.

I know change orders make a big difference. As a Member here for 20 years, I would hope that you would get this program under control so we don't see the cost overruns. Make a decision based on a shipyard that can do the work and hold their feet to the fire and consult with us if you see a problem. We have been extremely disappointed.

And I didn't mean to go into such a long tirade, but it has been such a disappointment to me to see such an arrogance which has been displayed over the years.

Admiral OWENS. Mr. Chairman, we take your words to heart. I would apologize for any sense of arrogance. That certainly—I know that Admiral Kelso nor any of his staff have never intended, overtly or not, to be in any way arrogant. We are very much trying to be real members of the team, and I think that team goes beyond just the Pentagon, to work with the committee. We recognize that you have brought real wisdom to our decisions that we are trying to incorporate. You will see some of that in our FY 1994 budget and long-range plan.

The importance of Sealift, I hope, is visible to you in the method by which we put together the Navy/Marine Corps budget. We have changed from the traditional mission areas; which used to be ASW, ASUW, mine warfare, et cetera. Today, we have six mission areas: joint strike; joint littoral warfare; joint surveillance; joint space and electronic warfare and intelligence; strategic deterrence; and strategic sealift and its protection. ASW, ASUW, and Mine Warfare are important, but only support the big picture. Strategic Sealift, however, is one of the areas we incorporate on a higher level of importance, more important than those traditional areas. so you see a real aggressive approach to those Sealift ships.

All of us who may not have even heard of strategic Sealift two years ago as warfighters are focused on that requirement, because we know it means something to our country.

I have a son in the Naval Academy. Things are different there.

Tailhook is not a happy thing for any of us. We take it as an institutional problem. This is not just something for our aviation community, isolated from the rest of us. All of us will stand together as we go through this difficult time. But we think that we are trying to lead the point of the spear as far as sexual harassment and the incorporation of real, equal values for men and women in

the Navy. So I hope you will see those improvements, and for any arrogance that we have shown I apologize.

Dr. WHITMAN. In times of contraction such as these, both the services and defense industry are being asked to scale back dramatically. In think only by making common cause and working together to ameliorate the kinds of conditions, disagreements and misunderstanding that you have described can we make any progress. We have taken that to heart and are doing the best we can, sir.

FUTURE REQUIREMENTS

Admiral OWENS. I would add one thing. On The issue of how the requirement side of our equation can help with the industrial base and with the issues of overpricing, we have tried to look at what we can reasonably afford for the long term and what we must build, how we recapitalize the Navy for the long term. One of the symptoms has been that we have always expected those budgets to ramp up dramatically in the outyears to always fund those additional ships. I think that has caused our shipyards in this country to maintain a structure far more than what we ever thought we could afford.

We have tried very hard in this budget, and in this long-term plan we call Force 2001, to say this is all we are going to be able to afford. That means X number of ships per year per category. We think we owe American industry that information so they can plan with us, and we want to do the appropriate thing, to build the ships we can afford and to maintain them.

Mr. YOUNG. I appreciate the comments you have made. I am uncomfortable in even raising this issue because I do support the Navy. I think you do a tremendous job, and strategic sealift—there is no doubt this Committee has spent a good portion of this year already talking about sealift and how to correct the problems there. The fact remains that we are still juggling with numbers and bailing out contracts, and I am sure there is enough blame to go around.

I am trying to figure out a way to get out of this and to get back on a contractual basis where we can have a pretty good idea of what is going into a ship and what it is going to cost when we enter into a contract. If the contractors are manipulating us, we ought to know about that and come down on that, too.

In talking about the industrial base and keeping shipyards alive, I hope the time doesn't come when America has no shipyard capability. We have already lost half our base, and in the future we are liable to lose another half, and pretty soon we are down to nothing.

One thing that could help keep the shipyards and the industry available is repair work. How much Navy repair work is being done in the U.S. by U.S. firms versus overseas firms?

Dr. WHITMAN. I don't have an exact figure. We only do repair work in overseas yards for ships homeported overseas and for which the return voyage would be expensive and distort OP-TEMPO requirements.

The split of available repair work between public and private shipyards is becoming extremely contentious. I am seeing more and

more congressional inquiries about this and I have been asked to adjudicate in these matters to an increasing degree.

I will provide a breakdown of how those monies have been spent in the last fiscal year.

Mr. YOUNG. I would appreciate that.

[The information follows:]

The actual spending levels for ship repair and maintenance for fiscal year 1992 are:

| | |
|--------------------|--------------|
| United States..... | \$2,801,816M |
| Overseas..... | 143,033M |

Mr. YOUNG. If it is just for those homeported, I understand it. Is that part of the agreement?

Dr. WHITMAN. Yes, sir. We have ship repair facilities notably in Guam and Japan. The lion's share of our repair work is done there and only on an overflow basis do we go to their commercial shipyards.

Mr. YOUNG. When we are facing diminishing dollars for defense and at a time when the media has gotten tough on defense spending, and this committee specifically has felt that pressure in the last few months, it is important that we get the most for the dollar. If we are at fault, give us some direction. If you are at fault, we are going to give you some direction. We would like to get this monkey off our backs and get back to doing business and get back to that 600-ship Navy.

Mr. MURTHA. Answer for the record questions on vertical launch ASROC and other questions for the record.

Also, our submarine warfare effort, the sonobuoys. As I understand it, we can't find them in the budget. This is one of the concerns we had about DBOF, putting some of that in DBOF so we couldn't locate the lines. We think that is so important that we are a little concerned about visibility of that item being lost.

If you would break that out and give us for the record how much money you are spending in that area, the whole anti-submarine thing, because we are getting more and more concerned about shallow water ASW, particularly.

[The information follows:]

Sonobuoy procurement in FY 1994 will be accomplished with both OPN and DBOF funds. The OPN funds will buy newly developed sonobuoys, and DBOF funds will be used for sonobuoys that are currently in inventory. The two new sonobuoys are the SSQ-53E DIFAR sonobuoy (\$14.5M) an improvement to the current SSQ-53D, and the SSQ-110 Extended Echo Ranging (EER) source sonobuoy (\$13.0M). DBOF has budgeted \$25M for the procurement of the SSQ-36 BT, SSQ-77 VLAD and SSQ-62 DICASS sonobuoys, and actual quantities will be determined by an analysis of current inventory vs. projected usage requirements.

Mr. MURTHA. With that, thank you very much. There will be additional questions for the record.

The Committee will adjourn until 1:30 p.m. this afternoon.

[CLERK'S NOTE.—Questions submitted by Mr. Dicks and the answers thereto follow:]

A-6 AIRCRAFT

Question. In the R&D hearing yesterday, Admiral, you discussed the upgrades for the F-14. What are the Navy's plans for the A-6?

Answer. Immediate plans call for elimination of two squadrons (20 aircraft) in FY 1994. The Nay proposal to phase-out the A-6 Type/Model/Series (T/M/S) by the end of FY 1999 will be thoroughly studied during the TACAIR "Bottom-Up" Review. No early actions have been taken to terminate or stop work on A-6 upgrades.

Question. Would you terminate the current re-wing contract?

Answer. Yes.

Question. Will there be any real savings?

Answer. Based on the negotiator's estimate of final settlement values (without consultation with the contractors involved or specific audits of costs), approximately \$407.7M savings may be realized from the Boeing contract and \$173.2M from the two Grumman contracts on the current re-wing effort (total of \$580.9M). For obligation purposes, the re-wing funds all expired on September 30, 1992, and would be returned to the U.S. Treasury if re-wing is terminated. Additionally, approximately \$7.76M are potentially recoverable from existing Block IA Upgrade contracts.

TRIDENT II (D5) BACKFIT

Question. Last year, Admiral Bacon was before our committee, and I raised the question on the D-5 Backfit on the Pacific TRIDENTs? His answer was that the decision had not yet been made. Has the Navy made the decision as to when this backfit will begin?

Answer. The decision on whether to backfit the eight Pacific based TRIDENT SSBNs has not yet been made. This issue will be reviewed during the workup for the fiscal year 1996 budget submission.

SUBMARINE PROGRAMS

Question. I am very concerned that as a result of the drawdown, the Navy is losing the critical components of the nuclear submarine industry. In your statement, Admiral, you indicated that the Navy is studying this issue on how to best utilize what funding is available to maintain this base. When do you expect your studies to be completed? Can you share any of the Navy's ideas with the Committee?

Answer. The Navy has provided input to an ongoing Department of Defense review on submarines, which should conclude in the next several months. The Navy has recommended utilizing the \$540.2 million of industrial base funding provided last year by the Congress to support procurement of the SSN-23 in FY 1995 or FY 1996, with release required in FY 1993 in order to minimize risk to the industrial base.

MK 50 PRODUCTION AND TORPEDO INDUSTRIAL BASE

Question. I understand that the MK 50 Torpedo Production line will be closed out soon, and the technology is to be "put on the shelf." Your statement also indicates that the procurement of the MK 48 ADCAP All Up Rounds will end after this year, how will this industrial base be preserved?

Answer. The industrial base capability to manufacture torpedoes will begin to dissipate within 18 to 36 months after the last production contract award. The Navy is currently assessing alternatives

and costs to reconstitute production in the future, and to retain critical skills and technologies in the interim. This assessment should be completed by the end of August 1993.

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks. Questions submitted by Mr. Sabo and the answers thereto follow:]

NAVAL INDUSTRIAL BASE

Question. As the Navy's shipbuilding program declines, there will inevitably be cut-backs in demand for related equipment such as the guns that go on Navy destroyers. I have heard that the Navy might be considering refurbishing existing 5" guns for use on new Burke-class destroyers in lieu of new production guns.

I am concerned about the impact of such a decision upon the naval industrial base, since the possibility exists that the Navy would decide to do this refurbishment at one of its depots, thus unfairly depriving a private contractor of the work. As I understand it, a depot would have a substantial advantage over a private contractor in that situation. Depots do not have to conduct basic or applied research, maintain design/development engineering teams, or adhere to the many Department rules and regulations that apply to private firms.

Has the Navy decided to equip new Burke-class destroyers with refurbished guns?

Answer. Yes. The Navy is working to reduce the cost of the new Burke-class destroyers while ensuring that mission critical operational performance is maintained. Using refurbished guns contributes to this cost reduction initiative.

Question. I know the Navy has studied the issue of over-capacity in its shipyards and depots. Were private contractors, particularly government-owned contractor-operated facilities, included in that assessment?

Answer. The Navy has conducted numerous recent industrial base studies covering private contractors. Some of those studies have included varying degrees of analysis of the capabilities of government-owned contractor-operated (GOCO) facilities.

GOCO facilities were considered during the Navy Base Realignment and Closure (BRAC) process. Since GOCO facilities are industrial reserve plants (IRPs), they were, however, not a factor in Navy base closure recommendations.

IRPs are operated solely with contractor personnel, with any on-site government personnel performing contract administration functions only. Data calls requesting information on military value and capacity were issued to 19 IRPs which were GOCO facilities. However, the determination of contract requirements and the subsequent decisions to provide funding to satisfy those requirements was not a subject suitable for treatment in the BRAC 93 process.

Question. Has the Navy studied the impact of its depot system on private contractors, in particular upon the research and engineering teams maintained by those firms?

Answer. Some of the studies the Navy conducted have considered the effects of depot work on private contractors, including the impact on research and engineering at those firms.

Those studies have generally indicated that research and engineering capability to design and produce ships, submarines and key systems could not be fully sustained by depot maintenance work.

Further, it is uncertain at this time whether any significant advantages could be achieved by moving depot research and engineering functions from one sector to the other, either public-to-private or vice versa.

Question. How would the Navy propose to retain a strong naval industrial base if it decided to assign maintenance work at its depots?

Answer. The Navy will consider engineering/technology, acquisition, and in-service support in developing a plan to foster the consolidation of similar kinds of work at private or public activities where the facilities, skills, and processes can be most effectively retained and seek a proper balance between public and private facilities.

Question. I understand that at least one of the Navy depots was originally on the Navy's 1993 base closure list? Is that correct? If so, why was the depot removed?

Answer. The Navy BRAC-93 process identified three Naval Aviation Depots and two Naval Shipyards for closure. A recommendation to close all of these activities was forwarded to the Secretary of Defense. The Secretary of Defense forwarded these recommendations to the Base Closure Commission unchanged.

MK 50 TORPEDOES

Question. For the last two years, Congress has approved approximately \$250 million for production of the MK-50 lightweight torpedo. Other funds were appropriated in the R&D account to qualify a second producer for the torpedo, despite concerns expressed in Congress that there probably would not be sufficient demand in the next several years to justify a second MK-50 producer.

Now I understand there are NO funds in FY 1994 for MK-50 production, yet again, only last year, the Navy felt the requirement for this torpedo was so great that we needed to spend taxpayers' dollars to qualify the second producer. I do not understand this decision.

What happened to so dramatically change the Navy's position?

Answer. The Navy initiated development and qualification of a second source producer for the MK-50 torpedo in FY 1987. The basis for this decision was the net savings anticipated from competitive procurements as opposed to sole source negotiated contracts with the developer (Alliant Techsystems). At that time threat projections supported a planned procurement quantity in excess of 7500 weapons, which was sufficient to ensure a large payback. This strategy worked as anticipated and contract unit production costs were reduced through competition from more than \$1 million in 1989 Low Rate Initial Production (LRIP) to \$472K in 1992 (LRIP 4). The second source (Westinghouse) has won _____ units awarded to date. Qualification was conducted using Weapons Procurement, Navy (WPN) funds, not RDT&E.

In FY 1992, as a result of the dissolution of the former Soviet Union, the resultant perceived reduction in the blue water subma-

rine threat, and the concomitant reduction in defense budgets, the Navy decided to terminate MK-50 torpedo production in FY 1994 after procurement of ——— weapons.

The FY 1993 production money has not been obligated as of 22 April 1993. The Navy is in the position of being able to choose between two producers but is not committed to using those funds for two producers. In fact, the two producers understand that the Navy will probably select only one producer for the FY 1993 buy. Using the FY 1993 money to extend the MK-50 production line will only result in getting fewer, more expensive torpedoes.

Question. Has the MK-50 test program been successful?

Answer. Yes. COMOPTEVFOR recommended fleet introduction of MK-50 following an exhaustive series of operational test firings. Additional software enhancements and further testing are planned for the future.

Question. Can you provide us some detail about the advantages the MK-50 would provide over the current MK-46 torpedo?

Answer. The MK-50 runs faster, deeper, and for a longer time. It has superior target acquisition range, countermeasure resistance and effectiveness, particularly in shallow water. The terminal homing accuracy and directed energy warhead allow for ———. Finally, the software driven architecture of the MK-50 Guidance and Control (G&C) system will allow significant future improvements to be incorporated over the weapons lifetime to enhance its performance in shallow water, against countermeasures, etc. Only marginal improvements can be made to the hardware based MK-46 G&C.

Question. You mention a MK 46 Service Life Extension Program (SLEP) in your statement. What does that entail? How many torpedoes would be improved? What would the program cost per torpedo, per year, and overall?

Answer. The MK 46 SLEP is a series of Engineering Change Proposals (ECP) designed to counteract age-related reliability and maintainability problems. The Navy is also examining the incorporation of several improvements to increase shallow water performance. These improvements would be accomplished simultaneously with the SLEP ECPs. The cost per torpedo is estimated to be between ——— torpedoes undergoing SLEP. The current yearly estimated expenditure rate is \$25M. The total estimated program cost is about \$400M.

Question. You also mention the possibility of improving the MK 46's performance. Can you provide some additional information about that? What kind of research and procurement funds would be involved?

Answer. As previously noted, the Navy is examining ways of improving the MK 46 performance in shallow water. This would be accomplished by applying to the MK 46 some of the advanced technology developed for the MK 48 and MK 50 torpedoes. The scope of the improvements have not been defined nor have the amount of research funds required been identified. The improvements will be accomplished in conjunction with the MK 46 SLEP. The approach is to proceed with SLEP Engineering Change Proposal development with FY 1994 procurement funds and then request research funds in FY 1995 as needed. In any case, the combined total of research

and procurement funds will not exceed the estimated \$25M per year presently allocated to SLEP.

Question. What kind of research money does the Navy intend to spend on the MK 50?

Answer. The Navy is examining the initiation of a research program with an annual lightweight torpedo estimated cost of \$5M-\$9M. This program would capitalize on previous MK 50 research and is expected to extend through the FYDP.

Question. Would the improved MK-46 provide the Navy with the same capabilities as the MK-50? If not, what do you lose?

Answer. The improved MK-46 would utilize applicable MK-50 and MK-48 ADCAP hardware and software to provide a cost effective means to address the Rest Of The World (ROW), primarily diesel submarine threat. Even with the planned improvements, the MK 46 will not equal the performance of the MK-50. The MK-46 propulsion plant is not designed to run as fast, as quiet, as deep, or as effectively as the MK-50 or ADCAP.

Question. What happens to the torpedo industrial base? What are the essential technologies, and how much would it cost to maintain them? How much would it cost to resume production of lightweight torpedoes after a ten-year gap?

Answer. The industrial base capability to manufacture torpedoes will begin to dissipate within 18 to 36 months after the last production contract award. Essential critical technologies for the MK 50 torpedo include acoustic transducer array manufacture, warhead shaped charge liner manufacture, and propulsion system boiler and condenser fabrication. The Navy is currently assessing alternatives and costs to reconstitute production in the future, and to retain critical skills and technologies in the interim. Although a good technical data package exists, resumption of production after a 10-year gap would be a very difficult task, larger in magnitude than the initial development of a second source producer, which required approximately five years and \$50M to complete. The Navy's assessment which will quantify these issues more accurately, should be completed by the end of August 1993.

Question. Has all FY 1993 production money been obligated? Is the Navy committed to using those funds for two producers? Is there any way to use some of those funds to extend the production line at the original manufacturer?

Answer. The FY 1993 production money has not been obligated as of 22 April 1993. The Navy is in the position of being able to choose between two producers but is not committed to using those funds for two producers. In fact the two producers understand that the Navy will probably select only one producer for the FY 1993 buy. Using the FY 1993 money to extend the MK 50 production line will only result in getting fewer, more expensive torpedoes.

[CLERK'S NOTE.—End of questions submitted by Mr. Sabo. Questions submitted by Mr. Hefner and the answers thereto follow:]

AIRBORNE SELF PROTECTION JAMMER

Question. The Navy terminated ASPJ, at the Armed Services Committees' direction, last year after more than 10 years and \$1.5

billion of development. Dr. Whitman, what has the government got for its \$1.5 billion investment in ASPJ?

Answer. In terms of hardware, the Government has 20 systems that were used in the ASPJ test program and 95 systems that were procured under a low-rate production contract. These systems were delivered prior to contract terminations in December 1992. Less apparent have been the gains made in electronic countermeasures and manufacturing technology. To have achieved the increased electronic capability of ASPJ within the volume that housed less capable predecessor systems is a significant accomplishment that can lend itself to other Government applications.

Question. Please describe the dispute within the Navy about testing which caused the Navy to terminate the program.

Answer. The dispute concerns two areas: suitability and effectiveness. This is more a difference in assumptions used to establish criteria than a technical dispute. As regards suitability, the ASPJ was graded as unsatisfactory because built-in-test software indicated failure more often than the test criteria allowed. Some of these indications were not real failures but false indications. Testers counted hardware and software failure indications to compute the grade whereas others within the Navy understood that only hardware failures would be counted, in which case, the grade would have been satisfactory. In the area of effectiveness, the ASPJ was graded, in one set of conditions, as unsatisfactory because it did not improve aircraft survivability to the degree required by the test criteria. In this instance, because of the use of effective tactics and limitations in the test scenarios, attainment of a satisfactory grade was impossible in some cases. Specifically, an ASPJ-equipped aircraft was to be compared with an aircraft with no jammer flying an identical mission profile. The survivability of the non-jamming aircraft in this case was so high that improvement to the degree required was not possible even with perfect performance from the ASPJ.

Question. What are the implications for the F-14?

Answer. The implications of the ASPJ termination for the F-14D were that this aircraft, as it was about to be evaluated for fleet introduction, was left without a critical, required element, that of a defensive electronic countermeasures system. The Navy saw a way to ameliorate this predicament at minimal cost if it could use the ASPJ systems it had on hand. The following factors weighed heavily in the Navy's decision to pursue employment of the ASPJ in F-14D aircraft: the F-14D had no readily-available alternative to the ASPJ as did the F/A-18 with its ALQ-126B; the ASPJ test report recommended continued testing and limited deployment of the ASPJ in the F-14D; and the delivered ASPJ inventory could equip the entire F-14D fleet.

Question. Admiral Owens, does ASPJ work well enough for the fleet to use and do you have a requirement for it?

Answer. Yes to both parts of the question. Although the ASPJ may not be perfect by testing standards, it is better than any other jammer we have and is most certainly better than the F-14D's present alternative: nothing. The requirement still exists and has been validated.

Question. If there were no legislation involved, would the Navy have terminated the program?

Answer. No. The Navy was too close to realizing a return on its investment and fulfilling a long-overdue requirement to have quit. However, the Navy would not have proceeded to any additional production decisions until the testing issues were resolved, the shortcomings identified in testing were corrected, and these corrections were verified in operational tests.

Question. What does the Navy advocate should be done—absent the restrictive authorization legislation—for the government to obtain some benefit from its \$1.5 billion investment?

Answer. The Navy proposes use of delivered ASPJs in F-14D aircraft. This endeavor would be accomplished in three phases: (1) testing the F-14D/ASPJ integration in connection with the upcoming F-14D operational evaluation, (2) installing systems into fleet aircraft after testing is completed, and (3) providing logistic support once the fleet is operating the system. Phase (1) will require: (a) modifying installation racks to the configuration required for testing, (b) finishing F-14D/ASPJ integration, and (c) providing test and engineering support for the test program. Phase (2) will require completing the contract for 55 production installation racks. Phase (3) will require providing logistic support through the system's service life.

Question. Provide for the record the legislative language that would be needed for the Committee to allow you to proceed with ASPJ on a limited basis for the F-14 aircraft.

Answer. The following language is proposed:

Notwithstanding the provisions of Section 122 of the National Defense Authorization Act for Fiscal Year 1993, the Department of Defense is authorized to use FY 1993 funds and prior fiscal year funds for the following purposes:

(a) Research and Development funds may be used to acquire and modify racks necessary to integrate the ASPJ systems from the existing Navy inventory into the F-14D for operational testing and evaluation of the F-14D, and to provide for all support necessary for the required F-14D developmental and operational testing;

(b) Procurement funds may be used to procure racks necessary for integrating the ASPJ systems from the existing Navy inventory for the F-14D, and to provide for all integration/logistic support necessary for such systems.

SUBMARINE PROGRAMS

Question. Last year the Congress agreed to President Bush's proposal to rescind funding for the third submarine of the SEAWOLF class, but left intact \$540 million for preservation of the industrial base. What does the Navy plan to do with the \$540 million?

Answer. The use of the \$540 million is one of the subjects being considered in the ongoing submarine review within the Department of Defense's Bottom-Up Review. This review is evaluating the Submarine Industrial Base and will determine the best use of the \$540 million.

Question. What is the role of U.S. Navy submarines in the New World Order and how many submarines are required to fulfill this role?

Answer. Submarines continue to be relevant in the post-Cold War environment. They are ideally suited for the full spectrum of littoral conflict, in addition to providing the most reliable leg of the Strategic Triad. The inherent stealth, agility and firepower make

the submarine among the nation's only fully self-contained weapons systems—able to operate alone or in consort with other forces to support U.S. security objectives.

The cost effectiveness and survivability of the SSBN has been validated by analysis and attested to by the GAO. U.S. attack submarines are operating around the world today independently and in support of joint/combined operations with Naval Expeditionary Forces. The SSN provides a broad range of capabilities including covert intelligence collection; strike ashore with Tomahawk cruise missiles; insertion, support and recovery of Special Operations Forces; covert mine surveillance and mine warfare; and sea control through shallow water ASW and ASUW.

The Joint Staff recently examined the requirements for the submarine force and has determined that a force of ——— submarines is required to meet U.S. strategic requirements in the New World Order.

Question. How many submarines are scheduled for decommissioning in fiscal year 1994?

Answer. There are fourteen (14) submarines scheduled for decommissioning in fiscal year 1994. Eight (8) are attack submarines (SSN) and six (6) are ballistic missile submarines (SSBN). A breakdown by hull number is provided below:

SSNs: 614, 637, 648, 650, 662, 663, 679, 689.

SSBNs: 624, 629, 630, 633, 634, 641.

Question. Has the Navy considered a program to mothball nuclear submarines rather than scrapping them?

Answer. Lay-up of nuclear submarines (mothball) has many potential problems and no advantages. Specifically, placing nuclear submarines in a reduced status is not prudent from the standpoint of public and regulatory policy, technical, personnel, mobilization or fiscal considerations. Detailed discussion on placing submarines in lay-up (mothball) follows:

PLACING SUBMARINES IN LAY-UP

Placing nuclear powered ships in lay-up is not prudent from the standpoint of public and regulatory policy, technical, personnel, mobilization or fiscal considerations. Specifically:

Policy Disadvantages

- National and international confidence in U.S. nuclear warships predicated on active plants operated at a high state of readiness to enable safe operations.
- Lay-up would be a major departure from the policies that have assured safe and reliable reactor plant operation:
 - Keep reactor plants fully operational and maintained.
 - Use fully qualified crews, keeping skills honed by operating ships.
 - When ships are inactivated, defuel them immediately, thus minimizing the safety and environmental liability of idle plants.
 - A reactor core contains millions of curies of radioactivity
 - Represents a sabotage threat
 - The reactor with fuel installed has the potential for being taken critical (resuming the chain reaction process) which, if not done under established strict controls over procedures, systems operability and crew qualification, could lead to a nuclear accident.
- Shifting from a nuclear fleet, with high state of readiness, to one with ships in reduced status would parallel policies used by the Soviet Navy's nuclear program, a program with a long history of nuclear accidents and one whose ships have not been accepted into the ports of virtually all other nations.

Technical Disadvantages

- Significant technical and regulatory uncertainty as to the viability and safety of returning a laid-up nuclear plant to operation.
- To achieve safe nuclear operations demands the highest quality in reactor systems and equipment coupled with maintaining them with a well established operational envelope.
- No experience with long shutdown periods. Experience is based on precise measures of maintaining equipment and systems in operation involving: continuous fluid system purification, chemistry control, preservation, preventive maintenance, equipment refurbishment, environmental controls, etc.

ATTACHMENT

- o Effects of aging and disuse outside operating envelope experience are unknown, but potentially severe despite preservation precautions:
 - Corrosion - external, internal surfaces
 - Cracking - due to environmental stress, ion exchange, corrosion
 - Deterioration of electrical cabling and circuits
 - Mechanical equipment fails if not run and lubricated
 - Insulation (thermal/electrical) deteriorates
- o Substantial technical effort and expense would be required to evaluate the effects of long shutdown periods on plant safety and operability.
- o Resuming operation after long term lay-up of nuclear powered submarines has never been done by any nation.

Lay-up (defueled, in lieu of refueling overhaul)

Disadvantages in addition to those cited above

- o Although defueled, the ship would still have radioactive components in its propulsion plant and would require continual manning by a cadre of nuclear-trained personnel.
- o The ship would be unable to rapidly mobilize, if needed:
 - Refueling overhaul required to prepare ship to go to sea (\$250M, up to 30 months - this does not account for technical work needed to verify adequacy or replace reactor plant components due to lay-up effects)
 - Estimated approximately \$3M per year required to maintain ship capable of being mobilized compared to approximately \$11M per year to maintain ship operational

Lay-up (with fuel, in lieu of non-refueling overhaul)

Disadvantages in addition to those cited above

- o The crew size could not be reduced substantially below normal operational requirements. A nuclear submarine, even shutdown, requires continuous manning by highly-trained nuclear operators.
 - A shutdown reactor plant requires continual maintenance to keep its systems operational
 - A shutdown reactor plant continues to have reactor safety requirements which must be addressed by qualified operators
 - Safeguards and security requirements are the same as for an operational ship

- o Most non-nuclear systems must be maintained which would require a crew of non-nuclear personnel to perform preventive maintenance.
- o The ship would be unable to mobilize rapidly, if needed.
- o Large investment in training and qualifying reactor plant operators would yield little return. Operator skills essential to reactor safety would atrophy. Safe nuclear submarine operations require a high state of readiness attainable only through continuous, dedicated training at sea and in port.
- o Non-refueling overhaul would be required to prepare ship to go to sea (approximately \$120M, up to 24 months). This does not account for technical work needed to verify adequacy or replace reactor components due to lay-up effects.
- o Depending on remaining fuel life when ship is laid-up, future propulsion lifetime could be of limited value. Because of this and technical uncertainties - regarding condition of the reactor plant, fuel replacement would be sensible given high cost and duration of the required overhaul.

ENHANCED MODULAR SIGNAL PROCESSOR (EMSP)

The committee has been a strong supporter of the Enhanced Modular Signal Processor (EMSP). The budget submitted includes a request of \$44.6 million for the third year of a multi-year procurement program.

Question. What funds are included in the out years for the EMSP program?

Answer. The total estimated out year funds (Dollars in Thousands) for EMSP (FY 1995-1999) are:

| | |
|---------------------|---------|
| RDT&E..... | 39,159 |
| OPN(MYP)..... | 54,555 |
| OPN (Support) | 13,633 |
| O&M,N | 25,136 |
| Total | 132,483 |

Question. Your statement mentions that there is a shortfall of \$2 million in the fiscal year 1994 request for EMSP. Do you intend to have a below threshold reprogramming to make up this shortfall?

Answer. Yes, the \$2 million shortfall in OPN(MYP) will be restored by below threshold reprogramming.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner. Questions submitted for the record and the answers thereto follow:]

F/A-18C/D AIRCRAFT

Question. Why is it necessary to continue producing the F/A-18C/D versions, 132 aircraft over the next four years? Could we stop production of the F/A-18C/D now and wait until the newer version, E/F is ready for production? What would be the increased cost to the E/F program of 132 additional aircraft and a four year gap in production?

Answer. Terminating F/A-18C/D production and waiting until the F/A-18E/F is ready for production is not advisable. The F/A-18C/D is the Navy's only active new combat aircraft production line. Terminating the line would put the Navy in an unprecedented and extremely vulnerable position of being unable to produce new aircraft to meet conflict or wartime surge requirements. The Navy would not have an open combat aircraft production line until initial production of the F/A-18E/F begins in FY 1997—a vulnerability gap of three years. In addition termination of the F/A-18C/D procurements such that the last F/A-18C/D is delivered in FY 1995 (FY 1993 procurement) would result in the USMC attaining only 56% Night Attack F/A-18 force (this percentage is likely to fall because of attrition and in matching aircraft configuration for CV deployment). Termination would also cause delays or prevent transition of A-4M reserve squadrons to the F/A-18. The risk to the F/A-18E/F program would markedly increase since a large percentage of its subsystems (particularly avionics) are common to the F/A-18C/D. It is estimated that termination of the C/D program and the gap in production of these common subsystems until LRIP-1 will result in substantial LRIP-1 non-recurring restart costs. Additionally, termination of the F/A-18C/D would have the following economic impacts: More than 20,000 jobs would be jeopardized at more than 2,000 companies in 44 states; approximately

84,000 man-years of U.S. employment could be lost between FY 1994-FY 1997; key suppliers may go out of business; supply of critical parts for the F/A-18E/F EMD phase would be at risk. The cost to rebuild the supplier base, reestablish the necessary engineering teams and restart the production line would be significant. Termination of the C/D production line would also place the FMS programs in jeopardy. The Finnish and Swiss programs would exceed budget restrictions and would likely be canceled. As much as \$2B in potential foreign sales would be forfeited and would further increase the production cost of the F/A-18E/F.

VERTICAL LAUNCHED ASROC

Question. The FY 1994 budget request includes \$22.7M to procure 40 Vertical Launched ASROCs (VLA). VLA is essentially a MK 46 torpedo capable of being rocket launched from surface ships. Please summarize the results of VLA's Follow-on Test and Evaluation (FOT&E) of last summer.

a. What was the recommendation of COMOPTEVFOR as a result of this test?

b. Has VLA been approved for full rate production?

Answer. ———. Approval for fleet introduction is recommended." VLA was approved for full rate production on 31 March 1993.

Question. The procurement unit cost associated with the fiscal year 1994 buy of VLA's is \$816,000. How does this compare with the unit cost of the Navy's last purchase of VLA's?

Answer. Previous procurement based on a quality of 300 missiles was \$413K.

Question. (a) What quantity of FMS VLA's does the budget request assume in fiscal year 1994 and outyears?

Answer. 28 in FY 1994 and 40 per year thereafter.

Question. (b) It is the Committee's understanding that the Navy has a "rock solid" requirement of 40 VLA's per year for the next five years, is this accurate?

Answer. The current requirement for VLA is ——— VLA was not included in the Non Nuclear Ordnance Requirement (NNOR) document for FY 1994 budget development process. VLA is included in the current NNOR development. The ——— estimate is based upon DDG-51 loadout plus training and logistics pipeline. The 40 per year procurement plan was based upon affordability.

Question. How many surface combatants are currently planned to be equipped with the MK 41 Vertical Launch System?

Answer. 81 ships are planned to be equipped with MK 41 Vertical Launch Systems through 1999.

Question. (a) How many of these are at sea without VLA missiles?

Answer. There are currently no VLA in the fleet. There are 38 ships in commission with the MK 41 Vertical Launch System.

Question. (b) When will the first VLA production weapons enter the fleet?

Answer. The first VLA missiles will enter the fleet in the ———.

Question. (c) What is the Navy's total inventory objective for VLA's?

Answer. The current inventory objective for VLA is ———.

Question. (d) At what rate is the contractor to deliver the current VLA quantity (300 Navy missiles plus 54 FMS missiles)?

Answer. 17 per month.

Question. Based on the outyear production profile contained in the budget request at what rate will the contractor be delivering missiles?

Answer. Contractor will deliver 17/month starting in May 1993 until the initial contract is fulfilled. FY 1994 and out will deliver 80/year (6⅔ per month) of which 40 are US and 40 are Foreign Military Sales.

Question. Do you anticipate a production break?

Answer. A two to three month break in deliveries is anticipated. However, there will continue to be work accomplished in the plant at the sub-assembly level.

Question. Has Navy considered any alternative procurement strategies to keep unit costs down and/or keep production lines at efficient rates?

Answer. Yes, but given the current funding level, and considering overall budget and program priorities, 40 a year is the best that can be achieved.

TRIDENT II (D5) MISSILE INVENTORY OBJECTIVE

Question. The fiscal year 1994 budget request contains \$1.1 billion including advanced procurement to procure 24 D5 Sea Launched Ballistic Missiles. What is the total inventory objective for D5 missiles?

a. What assumptions are made concerning the TRIDENT II submarine force structure in determining this number?

b. What number of annual test and training shots are assumed in the overall inventory objective?

c. What procurement profile for the United Kingdom is assumed in the outyears?

Answer. The total inventory objective for D5 missiles is 428. This objective is based upon a force of 10 TRIDENT II capable SSBNs (240 missiles), plus 35 Demonstration and Shakedown Operation (DASO) firings, 138 total Commander in Chief Evaluation Tests/Follow-on Commander in Chief Evaluation Tests (CET/FCETs), and 15 missiles to support logistics. All CETs are complete (28). To date 4 FCET missiles have been expended, and 6 FCET missiles will be expended per year for the life of the program.

The United Kingdom has procured 44 TRIDENT missiles to date and is expected to purchase ———. The Navy is not basing its purchase numbers on the U.K. buy because of their procurement uncertainty.

Question. Do you anticipate any changes in the inventory objective due to the results of current and/or pending arms control agreements?

Answer. No, neither START nor START II will affect the inventory objective of 428 missiles. Both treaties were designed with a force structure of 18 TRIDENT SSBNs with 24 missile tubes per ship. The missile tubes themselves are attributed with the declared number of re-entry vehicles. Currently, START attributes each TRIDENT SLBM launcher tube with 8 warheads. The limit of 1700

to 1750 SLBM warheads under START II is predicated upon, for example, 18 TRIDENT SSBNs with 4 warheads per missile tube (1728 total).

Question. At what rate are the contractor and major subs facilitated for D5 production? What efforts are being undertaken to shed capacity and overhead to minimize unit costs at significantly lower production rates for the D5?

Answer. The facilitization for D5 production at the contractor and major subs was sufficient to support a rate of 72 missiles per year. Beginning in FY 1994 the planned missile buy is 24 per year, or two per month, with a surge capacity to three per month. Planning for the possibility of production at lower rates was begun two years ago by a government contractor team with the objective of minimizing unit cost at the lower rates. The result of this planning is a program of facility consolidation, reducing or eliminating tooling and test equipment, improving processes, and reducing staff which is being implemented at the contractors.

Question. Describe the status of the decision to backfit the first 8 TRIDENT submarines with the D5 missile.

When do you expect a final decision to be made?

Are there any funds contained in the fiscal year 1994 request to support backfit of D5 missiles?

Answer. Backfit of the first 8 TRIDENT submarines with the D5 missile will be reviewed in support of the FY 1996 budget submission. There are currently no funds allocated in FY 1994 for conversion of these submarines to D5 capability.

NAVY COMPUTER PROCUREMENT

Question. CAD-2 (Computer Aided Design-2) was to be a procurement of automation hardware for the Navy Facilities Engineering Command. An administrative judge ruled that the Navy award for CAD-2 be terminated and gave the Navy two options to correct this procurement award. What actions have you taken to put the CAD-2 contract award on track?

Answer. On March 1, 1993, the Source Selection Authority (SSA) decided to reopen discussions and to call for a second Best and Final Offer (BAFO). This was the second of the two options provided by the General Services Administration Board of Contract Appeals decision. The vendors were notified on March 2, 1993. In the interim, the Navy has been modifying the Request for Proposal (RFP), the Source Selection Plan (SSP), and the Live Test Demonstration (LTD). The Navy released an amendment to the RFP on April 16, 1993, incorporating the changes that had been made to the RFP and SSP. The Navy expects to release an amendment in May to inform the offerors of the changes in the LTD. The LTDs are expected to be performed in June/July. The second BAFOs will be submitted in October and award is expected in December. The award is again to be a best value award.

Question. Could you define what "best value" means to you. (i.e., Is best value the lowest price bid for the most requirements met?) The low bidder on this procurement bid \$120M lower than the high bidder, met all Navy mandated requirements, and 70% of optional requirements, yet Navy still will not select them. Why?

Answer. The phrase "Best Value" describes a competitive procurement structured to award that offeror who provides the best overall "value" to the Government based on a trade-off between technical merit, life-cycle cost, and initial price. This approach thus permits differentiating between offerors, who otherwise meet minimum requirements, on the basis of vendor-unique features, potential productivity, historic and present quality, flexibility, and other specific benefits and drawbacks. When all of these are considered, in fact, the award may not necessarily go to the low bidder. In any event, however, the Government must be able to defend the rationale for its selection.

"Best Value" contracting provides the flexibility needed to reward vendor quality and innovativeness and to take advantage of rapid technology changes, without requiring voluminous and detailed specifications, which could easily overlook the availability of useful features unknown to the Government. "Best Value" contracting policy was specifically identified as the preferred approach for competitive procurement in an Assistant Secretary of the Navy (Research, Development and Acquisition) memorandum of March 22, 1991 (Exhibit 1).

The issues raised in the second part of this question concern source selection information which is presently subject to the protective order issued by the General Services Administration Board of Contract Appeals (GSBCA) on September 17, 1992, in *Centel Federal Systems, Inc.*, GSBCA Nos. 12011-P, 12012-P, 1992 BPD para. 350. Pursuant to the protective order, disclosure and discussion of such protected information is limited to: (1) the Board; (2) the counsel of record for the parties, and paralegals and clerical personnel who are engaged in assisting such counsel in the protests; (3) any person who is not employed by, or under contract with, a party, and who is retained by an attorney of record as a consultant or expert witness to assist in this protest; and (4) any other person whom the Board has deemed to be entitled to view protected material. Accordingly, the Board's protective order prohibits the Navy from discussing the issues raised in the second part of this question.



THE ASSISTANT SECRETARY OF THE NAVY
(Research, Development and Acquisition)
WASHINGTON, D.C. 20350-1000

MAR 22 1991

MEMORANDUM FOR PROGRAM EXECUTIVE OFFICERS
DIRECT REPORTING PROGRAM MANAGERS
COMMANDERS OF SYSTEMS COMMANDS
DEPUTY CHIEF OF STAFF FOR INSTALLATIONS AND
LOGISTICS, HEADQUARTERS, U.S. MARINE CORPS
COMMANDING GENERAL, MARINE CORPS RESEARCH,
DEVELOPMENT AND ACQUISITION COMMAND
COMMANDER, MILITARY SEALIFT COMMAND
COMMANDING OFFICER, AUTOMATIC DATA PROCESSING
SELECTION OFFICE
COMMANDING OFFICER, NAVAL COMMERCIAL
COMMUNICATIONS CENTER

Subj: "BEST VALUE" CONTRACTING POLICY (DCN 1U210021/APIA-01-0001)

The purpose of this memorandum is to reemphasize the Navy's commitment to competitively select sources on the basis of "best value" to the Government. In determining factors to be evaluated other than price, the nature of the supplies or services to be acquired must be considered.

Factors impacting "best value" decisions include technical competence, proven past performance, management capability, life cycle costs and quality. Evaluation of these factors should be structured to ensure that they are given due consideration in determining the overall benefit associated with the offered price.

"Best value" evaluations should be employed wherever possible and especially in weapons system, federal information processing (FIP) and professional and technical service support acquisitions. Requirements which dictate complex integration of people, equipment, hardware, innovation and software should also be evaluated on a "best value" basis. However, when noncomplex, routine requirements are being procured and the product to be delivered is clearly defined at the outset of the procurement, it may be appropriate to award to the lowest priced, technically acceptable offeror.

Please circulate this memorandum to the appropriate personnel as it reemphasizes the Navy's commitment to "best value" when acquiring systems, products and services for the Fleet.

G. A. Cann
Gerald A. Cann

Exhibit 1

Question. For the record, would you provide the Committee with a breakout of all CAD-2 funding for fiscal year 1994. Please break this funding out by contract.

Answer. The breakout of the FY 1994 CAD-2 funding is as follows:

1. Contract Name: Computer Aided Design Second Acquisition, Marine & Mechanical Design.

Contract Number: N66032-91-D-003.

Contract Awarded to: Intergraph Corporation.

FY 1994 Funding: Operation and Maintenance, \$720,000; Defense Business Operations Fund, \$6,513,000.

2. Contract Name: Computer Aided Design Second Acquisition, Facilities Engineering Design.

Contract Number: N66032-92-D-0015.

Contract Awarded to: Intergraph Corporation. Award terminated November 17, 1992. Recompetition pending.

FY 1994 Funding: Procurement \$60,000.

3. Contract Name: Computer Aided Design Second Acquisition, Aeronautical & Electrical Design.

Contract Number: Not awarded yet.

Contract Awarded to: Not awarded yet.

FY 1994 Funding: Defense Business Operations Fund, \$147,000.

DECLINE IN OTHER PROCUREMENT, NAVY BUDGET

Question. A total of \$3 billion is requested for "Other Procurement, Navy (OPN)". These funds are for a variety of programs including: Communications and electronics equipment; Ship support equipment; Ordnance support equipment; and Spares and repair parts. The request of \$3 billion for "Other Procurement, Navy" is a reduction from: \$6 billion provided in fiscal year 1992 level; and \$5.5 billion provided in the current fiscal year. What are the major components of that decline?

Answer. The decrease in FY 1994 OPN from the prior year consists of two major components. First, decreased ship and shore force levels have substantially reduced modernization requirements for equipment upgrades traditionally funded in OPN. Reductions were made to ship classes no longer planned to be retained in the Fleet in the near term, such as older aircraft carriers (CV/AVT), attack (SSN) and fleet ballistic missile (SSBN) submarines, CG-16/26 class cruisers (CG), nuclear powered cruisers (CGN) and support ships, as well as early retirement of patrol hydrofoils (PHM) and reserve frigates (FFT). Such force structure changes from current levels decrease general modernization requirements and, accordingly, OPN procurements. Examples of reduced modernization requirements include: (1) deletion of planned surface ship ASW acquisitions (AN/SQQ-89); (2) reduced procurement of submarine sonar and fire control system upgrades (AN/BQQ-5E and MK-117); and (3) reduced communications and electronics equipment acquisitions.

Second, the method for funding equipment installation costs was restructured from a fully funded to an annualized basis. This change avoided problems with expiring funds, slipping ship schedules and changes in work package costs and resulted in a one-time savings of \$758 million in FY 1994.

Question. Various active duty ships are proposed to be scrapped and equipment from these ships will be used in the upgrading of other ships.

To what extent will the Navy's equipment needs for the "Other Procurement, Navy" account in FY 1994 be met by transferring equipment from ships scheduled to be scrapped?

Answer. The Navy is actively pursuing the identification of equipment which can readily be cross decked from ships planned for deactivation to ships which will remain in the Fleet. The following amounts represent a cost avoidance and were cut from the planned FY 1994 budget request prior to submission to the Congress based on the availability of equipment for ships and submarines now scheduled for early deactivation but which will be transferred to other ships remaining in the Fleet.

| | [Dollars in millions] | <i>Amount of
reduction</i> |
|---|-----------------------|--------------------------------|
| Firefighting Equipment | | .7 |
| Pollution Control Equipment..... | | 1.7 |
| SATCOM Ship Terminals..... | | 10.7 |
| SSN Acoustics (AN/BQQ-5E Sonar System)..... | | 22.2 |
| MK-117 Fire Control System..... | | 12.9 |

The above amounts differ from costs savings for equipment and ship alterations no longer required based on those same accelerated ship and submarine deactivations. The planned FY 1994 budget request was also reduced by the following amounts prior to submission to the Congress to reflect this reduction in requirements which will not be reapplied to ships remaining in the Fleet.

| | |
|----------------------------------|------|
| Nuclear Alterations..... | 62.2 |
| Other Navigation Equipment | 6.1 |
| Tartar Support Equipment | 2.2 |
| Terrier Support Equipment | 2.9 |

Question. What, if any, functions that had been funded in the "Other Procurement, Navy" account have been transferred to "Operation and Maintenance, Navy"?

What is the dollar total of this transfer to O&M?

Answer. The following three items are proposed for transfer beginning in FY 1994 to the Operation and Maintenance, Navy from Other Procurement, Navy account: Modernization Support: The FY 1994 budget request proposes to transfer funding for Modernization Support from OPN to O&MN based on budgeting general ship modernization planning and overhead, which cannot be assigned to any specific procurement equipment or minor ship alternation, as an expense in the operations account. Modernization Support funds design services and minor ship alterations. Prior to FY 1990, these types of expenses were budgeted in the O&MN account. However, based on a change in funding policy which annualizes all equipment installation costs, approximately \$255 million in FY 1994 requirements, which would otherwise require new O&MN budget authority, are prefinanced with FY 1992 and FY 1993 OPN funds. Nuclear Alterations: The FY 1994 budget request proposes to transfer \$35.9 million from OPN to O&MN based on budgeting general ship modernization planning and overhead, which cannot be assigned to any specific procurement equipment or minor ship alternation, as an expense in the operations account. Prior to FY 1990,

these types of expenses were budgeted in the O&MN account. This amount for nuclear alterations is analogous to the transfer for Modernization Support of non-nuclear items. OPN retains \$108.6 million in FY 1994 associated with specific equipment and ship alterations. AN/SSQ-77(VLAD): The FY 1994 budget request proposes to transfer sonobuoy procurement to the Defense Business Operations Fund (DBOF) in the amount of \$34.2 million. As a training driven consumable, stock funding sonobuoys would more effectively reflect user defined requirements rather than basing procurement on a static model.

OPN funds would be budgeted for procurement for a maximum of two years while major Engineering Change Proposals (ECPs) would be completed. At that time funding would be transitioned to the DBOF. With their limited shelf life, DBOF financing would procure sonobuoys as a stock fund consumable with customers using O&MN funds to buy out stockage at production delivery. Under this proposal, OPN retains \$27.6 million to procure AN/SSQ-53 (DIFAR) (\$14.6 million) and AN/SSQ-110 (EER) (\$13 million) in FY 1994 based on the need to complete major ECPs while funding for the AN/SSQ-77 (VLAD) (\$34.2 million) would be transitioned to the DBOF.

Question. In past years, when funds were requested for equipment to upgrade ships, the installation funds for that equipment was requested at the same time.

—Have you continued that practice in the fiscal year 1994 request?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

MILSTAR SATELLITE TERMINAL

Question. A total of \$193.6 million is requested for communications satellite terminals aboard ships and \$15.5 million is requested for shore satellite terminals. What amount of requested funds are for MILSTAR satellite terminals?

Answer. In the FY 1994 President's Budget, \$88.4 million is requested for FY 1994 procurement of communications satellite terminals aboard ships and \$25.8 million is requested for shore satellite terminals. Included in the FY 1994 request is \$68.9 million for MILSTAR terminals aboard ships and \$19.3 million for MILSTAR terminals for shore sites.

Question. What is the Navy's "architecture" for the terminals for the MILSTAR satellite communications program,—i.e., what class of ships are scheduled to receive MILSTAR terminals?

Answer. MILSTAR terminals are planned for the AGF-3, AGF-11, LCC-19, LCC-20, LPD-13, CV-62/63/64/67, CVN-65/68, CG-47, CGN-36, DDG-993, DDG-51, DD-963, LHA, LHD, LSD-41, LX, AS-33/36/39, AD-37/41, MCSX, AE-26, AO-177, AOR, AOE, TAE-26, TAO-187, TAGOS ship classes and the SSBN-726, SSN 688/751 and SSN-21 submarine classes.

Question. What is the total projected buy of MILSTAR terminals by the Navy for ships and shore based?

Answer. An estimated procurement requirement for MILSTAR terminals by the Navy was defined in January 1993 as follows:

| | Current contract | Possible follow-on contract | Total |
|----------------------|------------------|-----------------------------|-------|
| Shipboard..... | 149 | 83 | 232 |
| Submarine..... | 45 | 29 | 74 |
| Shore..... | 34 | 26 | 60 |
| Trainer/Support..... | 9 | 6 | 15 |
| Total..... | 237 | 144 | 381 |

This estimate reflects known force reductions reducing the original acquisition objective.

Question. Regarding MILSTAR terminals, the prepared statement mentions that, "Terminal deliveries under the succeeding contract will not begin until 1999 and are expected to be appreciably more expensive."

—What is the current price per terminal and what is the projected cost in the future contract?

Answer. Below, the contract price per terminal in FY 1994 for planned quantities are compared to expected costs for similarly configured units and quantities under a new contract (in Thousands of Constant 1992 dollars).

| | Fiscal year 1994 | | Fiscal year 2000 |
|----------------|------------------|------------|------------------|
| Shipboard..... | 1,172 | 5-year | 1,588 |
| Submarine..... | 889 | production | 1,334 |
| Shore..... | 1,045 | break. | 1,629 |

If there should be a follow-on procurement, there will be an independent cost estimate to validate budget cost estimates. The independent estimate would reflect the potential for joint service commonality with other ongoing procurement programs.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, APRIL 28, 1993.

AIR FORCE PROCUREMENT PROGRAMS

WITNESSES

LT. GEN. JOHN E. JAQUISH, USAF, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR ACQUISITION

MAJ. GEN. JOHN M. NOWAK, DIRECTOR OF SUPPLY (DEPUTY CHIEF OF STAFF FOR LOGISTICS)

MAJ. GEN. PATRICK P. CARUANA, USAF, DIRECTOR, LONG-RANGE POWER PROJECTION, SPECIAL OPERATIONS FORCES, AIR LIFT AND TRAINING PROGRAMS (ASSISTANT SECRETARY FOR ACQUISITION)

MAJ. GEN. RICHARD B. MYERS, USAF, DIRECTOR, FIGHTER, COMMAND AND CONTROL, AND WEAPONS PROGRAMS (ASSISTANT SECRETARY FOR ACQUISITION)

INTRODUCTION

Mr. MURTHA. The Committee will come to order. Today the Committee welcomes back Lieutenant General John E. Jaquish, Principal Deputy Assistant Secretary for Acquisition who will support the President's fiscal year 1994 budget request for all Air Force Procurement. Also testifying are Major General Patrick P. Caruana, Director of Long-Range Power Projection, Special Operations Forces, Airlift & Training Acquisition Programs, Major General Richard B. Myers, Director, Fighter, Command and Control, and Weapon Programs, and Major General John M. Nowak, Director of Supply, Deputy Chief of Staff/Logistics. The total request for all Air Force procurement programs is \$19.6 billion, a decrease of 12.2% from fiscal year 1993. This overall figure masks a 37 percent decline in the Aircraft Procurement account alone.

I want to welcome this distinguished panel to the committee. Yesterday we had a 2½-hour meeting, with the President about the Bosnian situation, and I just was over in the Adriatic and went to Aviano and visited the F-15 squadron and was impressed with their morale, and their quick deployment.

We will put your entire statement in the record. If you summarize quickly, we will get right to the questions.

SUMMARY STATEMENT OF GENERAL JAQUISH

General JAQUISH. It is a pleasure to be here. Later on today, Major General John Nowak will be announced for promotion to three-star and become the Air Force Deputy Chief of Staff for Logistics.

I am sure that he is ready for every detailed question that you would ask. He is full of answers and ready to be challenged.

Mr. MURTHA. I appreciate that because I used to think when I was a young second lieutenant that things just appeared on the ho-

rizon. I never had any idea logistics was even part of the service. I have learned since then it is a little different situation.

You have one of the most important jobs in the service. Congratulations to you and we look forward to working with you. Your job is going to be tough.

I found during a trip to Fort Hood and Camp Lejeune, that we are on the edge of the envelope when it comes to the amount of money available in O&M. Spare parts are slower getting to the field because they are not available. I see us moving to a hollow force with the propensity not to reenlist. Who is going to pay for a potential operation in Bosnia if you want to get involved? I thought the Vice Chief did an excellent job in explaining how difficult air war is. Certainly you can hit the target, but in a situation like this, and General Oaks agreed, it would not be a simple solution to just knock out artillery pieces.

Congratulations and welcome to the committee.

General JAQUISH. We are ready for questions.

[The statements of General Jaquish and General Nowak and charts follow:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: FY 94 Air Force Procurement Programs

STATEMENT OF: LIEUTENANT GENERAL JOHN E. JAQUISH
Principal Deputy Assistant Secretary (Acquisition)

28 April 1993

**NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON APPROPRIATIONS,
HOUSE OF REPRESENTATIVES**

Mr. Chairman and Members of the Committee:

It is my pleasure to appear before you to review and discuss the Air Force's proposed procurement activities as presented in the Fiscal Year 1994 (FY 94) President's Budget.

Our overall procurement budget requests reflect a continuing downward trend of procurement funds. In FY 94 constant year dollars, our \$7.3 billion aircraft procurement request equates to a decline of 35 percent over last year's \$11.3 billion request and a 58 percent decline from the FY 88 request of \$17.5 billion. For missiles, our FY 94 procurement budget request of \$4.36 billion equates to a 22 percent decline from the FY 93 request of \$5.56 billion and a 64 percent decline from the FY 88 request of \$12.1 billion.

With the overall Air Force budget decreasing, we can no longer afford to proceed through full rate production on many of the systems and technologies under development. Now, we will rely more often on inserting new capabilities into existing platforms and on upgrades, rather than building totally new systems. We will also place greater emphasis on producibility and manufacturing processes. We will take the time to fully prove new concepts and then take only a few through full rate production. We will emphasize longer periods of research and development for testing and proving the value of systems before buying. The demise of the Soviet threat allows us the time to do these things. It also requires a very different focus on the acquisition process.

This new focus, with the emphasis on up front work and less emphasis on production, will allow us to preserve our technological edge with fewer resources. There are, however, a number of issues and concerns that remain to be worked out with this new approach.

We are committed to supporting technology transfer, spin-off, and dual use technologies to the U. S. private sector and to adapting commercial products and technologies to meet military needs. Sharing information and expertise through technology partnerships involving industry, government, and academia not only benefits the Air Force but the economy as well.

The defense industrial base is one of our primary concerns. A healthy industrial base is vital to our nation's continued security. Our strategy focuses on changing contracting practices to foster integration between military and civilian business requirements and on structuring acquisition plans to minimize the impact of acquisition decisions on the health of the U. S. industrial base. These initiatives are leading us to improve our own practices by encouraging the use of commercial technologies, manufacturing processes, products, and other commercial business approaches. We also are conscious of the importance of maintaining an adequately skilled work force to preserve the industrial base which is vital to this nation's technological and military superiority.

We don't profess to have all the answers for you today, but we do want to emphasize again why the Air Force endorses the new acquisition process. Simply put, future uncertainties demand that we continue to develop new technologies, maintain our technology edge, and do so in the face of significantly declining budgets. This means, proportionally, increased R&D and decreased procurement.

In planning future procurement, we now evaluate the capability to support the major objectives of the Air Force strategic planning framework of Global Reach -- Global Power. Since our acquisition programs must support

multiple objectives -- *sustain deterrence, provide versatile combat forces, supply rapid global mobility, control the high ground, and build U.S. influence* -- I'll address the following categories in this statement:

- Power Projection
- Global Mobility/Reach
- Space and Command, Control, Communications, and Intelligence (C³I)
- Training
- Special Operations Forces (SOF)

POWER PROJECTION

Bombers

The B-2 remains the pivotal element in the Air Force's Bomber Roadmap for the future. The Air Force's comprehensive Bomber Roadmap provides an array of bomber forces (B-52H, B-1B and B-2A). With reductions in forward staging areas, force structure, basing rights and other power projection platforms, bomber forces of the future will prove key in achieving the theater commanders' critical tasks. Those tasks include holding at risk and attacking:

- Weapons of mass destruction
- Massed enemy conventional forces
- C3I and air defense nodes
- Enemy air attack assets and offensive forces
- Enemy capacity to wage war

In the future, bombers will provide the majority of firepower during the initial phase of the theater air campaign. As the theater campaign evolves, bombers will continue to supply significant firepower during sustained operations, while at the same time retaining the flexibility to swing to another theater rapidly.

Only the B-2 will be capable of penetrating and attacking the most heavily defended targets on day-one with precision-guided munitions. The B-2 will destroy the most highly-valued targets with, or without, supporting forces, while at the same time minimizing risk, reducing collateral damage and leveraging our leadership in technology. The B-2's long range, large payload, and high survivability make it a logical choice as a power projection instrument of national policy for the future.

The B-2 program is well on its way to providing the U. S. a fully operational 20 aircraft fleet. The development and production efforts have matured to the point that the final production aircraft are anywhere from 25 percent to 44 percent complete. In addition to the funds requested this year, the Air Force is well on its way to complying with the necessary FY 92 and FY 93 funding restrictions in order to obtain release of those funds. With successful completion of the required actions, and subsequent Congressional approval, the Air Force will be able to complete the aircraft production phase of this program.

Twenty aircraft provides the operational flexibility that will maximize the B-2's contribution to national defense. This force level will allow the Air Force to fully deploy 2 squadrons for 30 days and conduct sustained operations.

The B-1 will become the conventional workhorse of the U.S. heavy bomber force. The FY 94 procurement request will purchase deferred support equipment, interim contractor support and aircraft modifications, including the first conventional capability improvements. The deferred logistics support equipment will allow the Air Force to transition to an organic repair capability, and reduce dependence on costly interim contractor support. This interim contractor support is currently required to maintain aircraft readiness. The modifications plan for FY 94 include reliability and maintainability improvements, aircraft simulator updates, and preparation for integrating new conventional weapons capability onto the B-1.

The B-52H will play an important role in both the nuclear and conventional arena and some modifications are needed to improve its effectiveness, particularly for conventional operations. The FY 94 request helps provide improvements such as the Integrated Conventional Stores Management System, Global Positioning System, and radio improvements.

Strategic Missiles

The size of our strategic force structure is shrinking considerably, but our strategic missile force will remain powerful. The Advanced Cruise Missile (ACM) will continue to hold selective high-value targets at risk; however, in response to a smaller target base, we have reduced our planned ACM production to a maximum of 460 missiles. The Short Range Attack Missiles (SRAM) II and T have been terminated.

Cancellation of previous Intercontinental Ballistic Missile (ICBM) modernization efforts, such as Small ICBM and Peacekeeper Rail Garrison programs, in the wake of history-making changes in the strategic landscape, will leave the Minuteman III as our only land based ICBM after 2003. To ensure the Minuteman III remains a potent and viable weapon system well into the next century, we are conducting a series of life extension programs. For FY 94, procurement funding will help prepare for downloading the Minuteman III from the current multiple-warhead configuration to a single warhead configuration to comply with START-directed warhead limits. We will also continue the Rapid Execution and Combat Targeting Program to replace unsupportable 1960s era launch control equipment and pursue the Minimum Essential Emergency Communications Network program to upgrade and enhance command and control links with our nuclear forces. Taken together, Minuteman III life extension programs underway or planned will retain the capability currently resident in the ICBM fleet after the Peacekeeper ICBMs are retired and well into the next century.

Theater/Contingency Forces

The FY 1994 President's Budget reflects our basic investment philosophy that we must maintain a technological edge in the most essential elements of our Theater/Contingency forces even while we restructure to a smaller force structure. Future wars will likely be of short duration, high intensity, and "come as you are." Technologically superior air power is a necessity in the leaner, meaner Air Force of the future.

The FY 94 President's Budget seeks to provide the optimum balance of leading edge weapon systems and combat proven assets. The F-16 comprises roughly two-thirds of the multi-role fighter force and will remain the mainstay of that element of our force structure for years to come. As the Air Force is drawn down, the most capable aircraft are required to maximize combat efficiency. We have responded by funding continued production of 24 new Block 50 F-16s in FY 94. We must also continue to maintain the safety, survivability and effectiveness of the mainstays of our reduced fighter force, the F-15 and F-16. Our budget request funds essential modifications to these aircraft.

Conventional Weapons

Air Force conventional weapons procurement can be highlighted by one phrase - joint services programs. We are working hand-in-hand with the Navy and Army on several projects which will enhance and provide capabilities to both services, while minimizing costs of technologically superior weapon systems.

Advanced Medium Range Air-to-Air Missile (AMRAAM) procurement continues. AMRAAM provides a first shot, first kill capability against multiple targets, and the deployment to F-15 and F-16 units significantly increases our qualitative edge. The Air Force, as the lead service, has undertaken significant efforts to increase AMRAAM's capability and reliability, while dramatically reducing the unit cost through a highly successful competitive dual sourcing program. Modifications of current AIM-9M short range air-to-air missiles continue with upgrades to its performance against threat countermeasures.

The Tri-Service Standoff Attack Missile (TSSAM), as the centerpiece of our standoff munitions procurement efforts, brings together all elements - low observability, standoff range and a true launch and leave capability - needed to maximize survivability of launch platforms. We plan to begin procurement of long lead parts in FY 94 and start low rate production in FY 95.

Production of the AGM-130, a powered 2000 pound precision guided missile, will continue in order to maintain our ability to attack high value, heavily defended, enemy ground targets from a range outside of enemy point defenses. In response to changes in the global situation, we have reduced our inventory goal for procurement of this missile by almost half. Additionally, we are working on several product upgrades to make the missile less susceptible to jamming and provide improved target acquisition and penetration capability while making the missile easier to produce.

With completion of procurement of the High-Speed Anti-Radiation Missile (HARM) all-up rounds in FY 93, modification of older HARMs will begin in FY 94 to improve their capability against modern radar guided threats.

GLOBAL MOBILITY/REACH

The C-17 is the key to ensure the Air Force has effective, superior Global Reach. Direct delivery capability, ground maneuverability, and cargo off-load efficiencies make the C-17 the logical choice to improve the airlift component of strategic mobility and meet the requirements of the future. The C-17 will provide significantly improved capability to project power worldwide.

The C-17 accomplished its first flight on September 15, 1991. Since then, we have taken delivery of the first five production aircraft and have flown 1137 hours in 325 flight test missions. To date, flight and ground tests have gone well but have progressed slower than originally planned. We have reduced our FY 94 procurement request from 8 to 6 aircraft in recognition of the overall reduced defense budget and to allow for more maturity in the design of the production aircraft.

The Air Force continues to recognize the need for tactical airlift modernization. However, given the realities of current fiscal constraints and the fact that the current inventory of C-130Es have an average of 20,000 serviceable flying hours remaining, the Air Force feels that a concerted effort to modernize tactical airlift through acquisition of new aircraft or the service life extension of existing aircraft could safely be postponed until after the turn of the century.

SPACE and C³I

The goal of our Space and C³I systems is to assist in meeting the Air Force Global Reach -- Global Power objective of *control the high ground*. The national military strategy with its emphasis on a prudent, but smaller, base force and capability to respond quickly to regional crises, relies directly on the strength of space systems. The Air Force strategy of Global Reach -- Global Power is squarely dependent on the space force structure. As we look to a future of smaller, highly capable, flexible, and mobile fighting forces, space systems will provide the global situation awareness and conductivity to know the battlefield even before our forces arrive. They will monitor activities around the world and

command and control our forces to ensure the most effective application of power.

Our first priority is sustaining the operational space systems critical to our users. Second, we will continue ongoing deployments of new systems, ensuring they fit into our overall defense strategy, on a prudent schedule, to meet final operating capabilities. Last, we will pursue research and development efforts to satisfy new mission needs with space systems where the investment will have significant payoff, where the programs have been shown to be absolutely essential to counter new threats, and to leverage the declining force structure.

Our Defense Satellite Communications System (DSCS), Defense Support Program (DSP), and the Defense Meteorological Satellite Program (DMSP) are mature systems the Defense Department depends on for communications, missile warning, and environmental monitoring. Our mission is to provide replacement spacecraft as on orbit assets reach the end of their useful mission life. This year we expect to launch another DSP aboard a Titan IV, one new DSCS III satellite, and a DMSP, if required.

Our Global Positioning System (GPS) is progressing towards its initial operational capability later this year and towards full operational capability in 1995. High reliability, high precision, all weather navigation and time will soon be available 24 hours a day on a world wide basis to users with hand held terminals costing less than \$1300. The Air Force considered procuring two optional GPS Block IIR satellites because of their low cost if bought as part of the four multi-year satellites. But because the optional satellites are not required for purchase until FY 97, the Air Force decided to concentrate procurement

resources on the integration of GPS receivers on aircraft.

Milstar continues toward its first launch late this summer, fully compliant with our agreements on restructuring the program. In fact, the program as approved in the October, 1992 Defense Acquisition Board is even leaner than the one discussed in the restructure, featuring just four satellites to provide coverage in the mid latitudes and substituting a Milstar like, but less expensive polar adjunct for coverage at the north pole. Our final recommendations on the polar adjunct will be presented to the Defense Acquisition Board in 1994. The Air Force has deferred its requirements for production of bomber and launch control center based Milstar terminals, further decreasing program costs. We intend to continue to pursue technologies that can bring down the cost of both the space and terminal segments of Milstar.

The DSP is progressing toward contract awards (spacecraft and sensor) in the coming months for three satellites (numbers 23-25). For FY 93, Congress provided multi-year authority for this buy, which will save \$237 million, or 16 percent, over an annual procurement method. At the same time, to ensure maximum flexibility, we have structured these contracts to ensure minimum termination liabilities. This will allow us to delete a satellite cost effectively if future conditions indicate that one of these satellites is not required. At this point, however, these three satellites are crucial to the successful transition from today's DSP capabilities to the future advanced capabilities of the Follow-on Early Warning System (FEWS).

Although no procurement funding is included in this budget request for one of our newest program, FEWS, it will be one of our major procurement efforts in the future. FEWS -- some of you may refer to it as the improved, space based, Tactical Warning and Attack Assessment System -- received strong support from the Defense Acquisition Board and was fully funded last summer as we prepared our Future Years' Defense Program. The FEWS program, in its first year of demonstration and validation, is in the process of verifying the producibility of technologies necessary for the kind of performance we need from a successor to our current missile warning system. We will review our progress this summer in a Defense Acquisition Board review and expect to complete this phase of the program and begin engineering and manufacturing development in 1994. We believe the FEWS is a critical ingredient in sustaining current DSP capabilities and increasing performance to respond to the continued international proliferation of tactical ballistic missiles.

Essential to all of our space programs is the launch element. In FY 94, the Air Force will support the above space programs' launch requirements for establishing and maintaining the necessary constellations. Specifically, this will entail launching three Delta II boosters for the GPS program, an Atlas II booster for the DSCS constellation, and a Titan II for the DMSP. Four Titan IV launches are also scheduled to support other missions. In support of future GPS launch plans, the Air Force will be procuring two Medium Launch Vehicle (MLV) III boosters. The AF also plans to continue its efforts to restore and revitalize the nation's launch infrastructure by replacing aging range systems, completing a new Range Operations Control Center at the Eastern Space Launch Facility, and continuing the Range Standardization and Automation Project.

While our budget and programs are often defined by these products, we are continuing to seek better ways of doing business to eliminate duplication and overhead. We consolidated 13 separately defined Military Satellite Communications efforts into a single, joint program office. We did this to ensure that the Air Force could respond effectively to the changing customer base and mission needs of the armed forces. Similarly, we intend to consolidate, in the weeks ahead, our two early warning program offices into a single space based tactical warning and attack assessment program office. This will help us ensure a smooth and efficient transition as we move from an era dominated by the DSP towards the capabilities of the FEWS. We have begun discussions with the National Oceanographic and Atmospheric Administration on the potential for further consolidation of their Polar-Orbiting Operational Environmental Satellite Program and our own Defense Meteorological Satellite Program. Our investigation reflects future opportunities in life cycle cost savings as each agency considers the need for development of replacement satellites for our operational environmental satellite systems. We continue to challenge ourselves and our customers to consider less costly alternatives to ongoing programs and products. This is important to ensure the requirements we base our programs on represent the essential needs of our combat forces.

To manage the theater battlefield, now and in the future, the Air Force continues development and procurement of Joint STARS, and upgrades to AWACS. Joint STARS brings us a near all weather, world-wide, rapidly-deployable airborne platform to continuously survey large ground areas as well as the ability to direct fighter aircraft and Army attack systems. It will be the "eyes and ears" of the force commanders, allowing appropriate concentration and massing of forces. Our Joint STARS request funds one aircraft in FY 1994.

TRAINING

The Air Force continues to implement the 1989 DoD Trainer Master plan. The cornerstone of this program is the T-1A Airlift Tanker Training System. The program provides specialized training to airlift and tanker student pilots. This aircraft lowers operations and maintenance costs and reduces the student load on the T-38, allowing that aircraft to last into the next century. We are also half way through the procurement of the T-3A Enhanced Flight Screener. The T-3A better screens students pilot with a more capable/maneuverable aircraft and lowers student attrition rate from 20 percent to 15 percent thereby reducing operations and maintenance costs and lowering the number of follow-on trainer aircraft required.

SPECIAL OPERATIONS FORCES

Special Operations Forces (SOFs) have become increasingly important with the changing threat environment. The Air Force is committed to supporting the Army Special Forces, Rangers and Navy Seals. We are improving the MH-60G PAVE HAWK, SOF/combat rescue helicopter by expanding its capabilities for longer range, inflight refueling, precision navigation, survivor locator, and improved defenses. The FY 94 procurement funding request will complete the modifications to the MH-60G.

OTHER SIGNIFICANT ISSUES

So far, we've described the major procurement activities proposed in the FY 94 Air Force Budget, but before we conclude our statement, there are a few other items, very critical to successful Air Force acquisition, that we want to briefly discuss. These items relate to people, organization, and process -- items that sometimes get forgotten in our focus on big dollar programs.

Concerning people, the Air Force has a tremendous core of outstanding individuals, military and civilian, who work together as an effective team to manage and control the large, complicated programs we've just described. Last year we made great strides toward implementing the Defense Acquisition Workforce Improvement Act. Equal opportunities for advancement into senior acquisition positions are being made available in many areas to both civilians and military. Some program director and senior executive positions that would have once been filled by military officers are now filled by civilians. We've created new career programs for program managers, scientists, and engineers to ensure opportunities for all employees in these career fields. We are structuring our acquisition professional development program to support this legislation and we will provide the opportunity for our acquisition personnel -- military and civilian -- to get the necessary education, training and experience to proceed through their career path.

Our professional acquisition corps, like the rest of the military, faces some difficult reductions over the coming years. Our challenge is to manage this reduction and continually improve the quality of acquisition personnel to fulfill the goals set forth in recent legislation.

These are but a few examples. There are many others, and we're sure, next year at this time, there will be many more. Across the Air Force, and this certainly includes acquisition, we are looking at what is really needed -- and then taking action to make changes -- in organization, force structure, research and development, and procurement. Our people are ready for the challenge. We solicit your support.

Thank you, Mr. Chairman, for the opportunity to make this statement. We will be happy to answer your questions.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Air Force Procurement Program

STATEMENT: MAJOR GENERAL JOHN M. NOWAK
DIRECTOR OF SUPPLY
DEPUTY CHIEF OF STAFF/LOGISTICS
HEADQUARTERS, UNITED STATES AIR FORCE

28 APRIL 1993

NOT FOR PUBLICATION UNTIL RELEASED
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UNITED STATES HOUSE OF REPRESENTATIVES



Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

MAJOR GENERAL JOHN M. NOWAK

Major General John M. Nowak is director of supply, Office of the Deputy Chief of Staff for Logistics, Headquarters U.S. Air Force, Washington, D.C. The directorate is responsible for developing the Air Force supply and fuels policy as well as the logistics program justification to obtain the resources necessary to support the Air Force mission. He coordinates and manages these resources, in addition to justifying and defending logistics resource requests to the Air Force leadership, Office of the Secretary of Defense, Office of Management and Budget, and Congress.

General Nowak was born Dec. 17, 1941, in Grand Rapids, Mich. He earned a bachelor of arts degree in sociology and political science from Aquinas College in 1963, and a master's degree in management from the University of Southern California in 1973. The general completed Squadron Officer School in 1966, Air Command and Staff College in 1977, Armed Forces Staff College in 1978, Industrial College of the Armed Forces in 1983 and the Executive Management Program of the Kellogg School of Business, Northwestern University, in 1985. Also, he attended Harvard University's Course for Senior Managers in Government.



After receiving a regular commission in September 1963 as a distinguished military graduate of Officer Training School, Lackland Air Force Base, Texas, the general completed aircraft maintenance officer training at Chanute Air Force Base, Ill. From June 1964 until April 1967 he was assigned to Grand Forks Air Force Base, N.D., as commander of the 419th Field Training Detachment.

The general then served as a maintenance staff officer with the 34th Air Division, Custer Air Force Station, Mich. In August 1968 he was assigned to the 483rd Tactical Airlift Wing, Cam Ranh Bay Air Base, South Vietnam. He returned to the United States in August 1969 as a maintenance staff officer with Headquarters 10th Air Force, Richards-Gebaur Air Force Base, Mo.

In January 1970 General Nowak was assigned as director of maintenance, Headquarters 25th Air Division, McCord Air Force Base, Wash. He transferred to Headquarters Pacific Air Forces, Hickam Air Force Base, Hawaii, in February 1971, serving as a maintenance staff officer and later as executive officer to the deputy chief of staff for logistics. From July 1973 to August 1977 he was assigned to Headquarters U.S. Air Force, Washington, D.C., as project manager for the C-141 and C-5 modification programs, and as executive officer for the Directorate of Maintenance.

After attending the Armed Forces Staff College in Norfolk, Va., General Nowak was assigned to the 388th Tactical Fighter Wing, Hill Air Force Base, Utah, in February 1978 for the initial F-16 activation. While with the wing, he commanded the Avionics Maintenance Squadron, the Component Repair Squadron and the Aircraft Generation Squadron. He completed his tour there as assistant deputy commander for maintenance.

In February 1981 he was assigned as deputy commander for maintenance, 474th Tactical Fighter Wing, Nellis Air Force Base, Nev. From August 1982 until July 1983 the general attended the Industrial College of the Armed Forces at Fort Lesley J. McNair, Washington, D.C. General Nowak then returned to Hill Air Force Base as chief of the Aircraft Division, Ogden Air Logistics Center, where he was responsible for programmed depot maintenance and major modification of F-4s, F-16s, and Minuteman and Peacekeeper missiles. In July 1984 he became director of maintenance for the Ogden Air Logistics Center. In January 1986 he became deputy chief of staff for maintenance, Headquarters Air Force Logistics Command, Wright-Patterson Air Force Base, Ohio.

In June 1989 General Nowak was assigned to Headquarters Military Airlift Command, Scott Air Force Base, Ill., as deputy chief of staff for logistics and engineering, and in June 1992 he was assigned as deputy chief of staff for logistics, Headquarters Air Mobility Command, Scott Air Force Base. He assumed his current position in August 1992.

His military awards and decorations include the Distinguished Service Medal, Legion of Merit, Bronze Star Medal, Meritorious Service Medal with three oak leaf clusters, Air Force Commendation Medal and Humanitarian Service Medal.

He was promoted to major general Oct. 1, 1989, with same date of rank.

General Nowak is married to the former Maureen K. Henry of West Olive, Mich. They have five children: Kimberly, Susan, John, Michael and Lynn.

MR CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I want to thank you for your invitation to appear before the Committee today and discuss the various programs contained in our the FY 1994 Other Procurement, Air Force (OPAF) Budget request.

As you are aware, the Air Force is facing a period of substantial change not only in terms of its size and financial resources, but also with the geopolitical climate in which we perform our mission. Our request serves as a preliminary indicator of the quality Air Force we are building while retaining the essential attributes of air power. The request reflects our projected needs to meet strategic challenges and fiscal realities for the remainder of this decade and into the next century. With your continued support, we will remain vigilant, ready to provide leadership in an environment characterized by instability and uncertainty.

The OPAF appropriation consists of four budget programs: Munitions and Associated Equipment; Vehicular Equipment; Electronics and Telecommunications Equipment; and Other Base Maintenance and Support Equipment. This diverse array of equipment is essential to the conduct of operations and our ability to deter or counter a wide spectrum of threats to our national security and our interests abroad. These items are equally important in training our forces in times of peace.

I would like now to show the Committee our FY 1994 request by budget program as compared to FY 1993. Then I will present an overview of the programs.

FY 1994 OPAF BUDGET (\$M)

| | <u>FY 1993</u> | <u>FY 1994</u> | <u>DELTA</u> |
|--|----------------|----------------|--------------|
| Munitions & Assoc Eq | 260 | 245 | - 15 |
| Vehicular Eq | 151 | 155 | + 4 |
| Electronics & Tele-
communications Eq | 1,481 | 1,148 | - 333 |
| Other Base Main &
Support Eq* | <u>5,783</u> | <u>6,394</u> | <u>+ 611</u> |
| TOTAL | 7,675 | 7,942 | + 267 |

* Includes Special Projects

MUNITIONS & ASSOCIATED EQUIPMENT

This budget program funds the procurement of munitions, with the exception of guided missiles, and associated equipment necessary to support active and reserve forces in both peace and war. Our FY 1994 request of \$244.7 million is \$15.2 million less than the FY 1993 appropriated level. The funding you have provided in the past greatly improved our combat capability as witnessed in Operation Desert Storm. With your assistance we are now procuring munitions to replenish stocks that were expended during that operation. Delivery of these munitions over the next few years will

contribute to a "warm" production base for the foreseeable future. Nonetheless, the focus of our FY 1994 request reflects the new era in which we find ourselves -- a less defined threat with an attendant responsibility to be ready to cope with a variety of potential major regional conflicts (MRC). Although major regional conflicts will not be the only form of warfare the U.S. may find itself engaged in, a recent RAND White Paper entitled, "Comparing Air Power Projection Assets" posits that MRCs are the most demanding operational scenario and that "land based air forces ... are likely to provide the lion's share of U.S. power projection capability ... at least during the critical initial weeks of the war." This same paper cited modern munitions as an integral part of that capability.

There are many initiatives directed at ensuring a quality force to meet the demand the RAND paper refers to, but availability of munitions will continue to be a major component of ensuring a highly motivated and well-trained force. For that reason, 33% of the FY 1994 program is dedicated to the procurement of munitions to support training; the largest of these programs being 30mm training ammunition, \$26.5 million. The remaining 67% of the requested funding is for procurement of munitions to fill war reserve stocks or other requirements such as spare and repair parts. The most notable of our war reserve items are: Sensor Fuzed Weapon, for which we have requested \$89.5 million; DSU-33 proximity sensor

to improve the capability of the FMU-139 fuze, a \$20.6 million program request; and three infrared countermeasure flares with a total value of \$28M.

Not only do the programs we are requesting advance our readiness and ability to sustain forces during hostilities, but are a means of preserving our industrial capability, including surge capability, during this period of declining acquisition budgets. We have, as in the past, coordinated our proposed procurements with the Army in its role as the Single Manager for Conventional Ammunition (SMCA). In FY 1994, preservation of a viable production base will be accomplished through a carefully tailored program of training items, particularly in regard to the manufacture of bombs, and continued procurement of items for war reserve purposes. The cartridge and flare programs we are proposing for FY 1994 should help to keep those two critical ammunition sectors viable; while we are optimistic that we can retain a minimum chaff production base by procuring RR-180 and RR-188 chaff.

Nonetheless, we recognize a considerable decline in the amount of procurement funds being provided to the SMCA which in turn affects the Government-owned portion of the base. In FY 1993, \$147 million of the \$259.9 million appropriated has been provided to the SMCA for procurement of ammunition. In FY 1994, only \$97 million of our \$245 million request will be provided to the SMCA. The Army is aware of this decline in funding and is undertaking actions to address the impact.

However, it should be recognized that future budgets will be affected by increased unit costs and the funding needed to operate and maintain a base that will contain a sizeable segment of inactive facilities.

I would like at this time to provide you with some details about this budget program.

Rockets and Launchers

\$4.2 million is requested to procure four items in support of training. In particular we are focusing on munitions that assist aircrews in learning to evade and counteract anti-aircraft artillery or surface-to-air missiles. The procurement of Anti-Aircraft Artillery/Visual Cuing System components and GTR-18 missile simulators support this crew training objective.

Cartridges

A total of \$52.7 million is requested for this category. Again, the focus is on training items, primarily 30mm and 20mm aircraft cannon ammunition. Ammunition for wartime usage is also requested, particularly for ground forces. For example, we are requesting funding for the standard NATO 5.56mm ammunition used with the M-16A2 rifle and the Squad Automatic Weapon. Both of these weapons and associated ammunition are an integral part of our ability to train realistically, defend Air Force resources from attack or counter terrorist activity,

and allow inter-operability with other Services and NATO forces.

Aircraft cannon ammunition continues as a major part of our request. The 20mm training ammunition includes PGU-27 Target Practice and, for the first time, PGU-30 Target Practice Tracer. Both are being requested to ensure that training is consistent with combat operations. This objective is achieved by using ammunition that matches the ballistics of the 20mm combat round. The 30mm training practice round serves the same purpose as the 20mm training rounds. However, the requirement for this ammunition continues to decrease as force structure changes transform the role of the A-10 from an anti-tank platform to forward air control.

Funding for two chaff items is included in the FY 1994 request. The first is the RR-180 chaff, used in combat by primary fighter, attack and cargo aircraft as an airborne countermeasure to disrupt the tracking of an aircraft's flight path by radar equipment. We are still considerably short of our wartime requirement for this item that is critical to aircrew survivability. The other chaff is the RR-188. This chaff is used solely for training purposes and provides the same operational characteristics as the RR-170 and RR-180 chaff dispensed during combat. RR-170 and RR-180 chaff interferes with air traffic control systems in the United States; while the RR-188 chaff does not have this effect. Therefore, RR-188 can be used to train air crews in defensive

tactics without potentially imperiling the lives of others using the airspace.

Bombs

This category continues to decline in magnitude. Sensor Fuzed Weapon is the largest item in this category, and constitutes 37% of our entire funding request. The only other major bomb items are the BDU-50 and the BDU-33 practice bombs. These two bombs are used by bomber and fighter crews to maintain air combat proficiency.

The GBU-15 funding being requested is to procure 14 units of advanced support equipment, known as ASE. ASE allows the maintenance personnel in the field to test the reliability of the GBU-15 system without having to send the components back to the depot. This support equipment, which replaces the GJM-55 tester, is up-to-date in terms of electronics; is more reliable, (we are expecting a six-fold increase in reliability); and is portable.

As mentioned previously, Sensor Fuzed Weapon, constitutes a major portion of the budget request. The FY 1994 request is the third year of the four years of low rate production that the Defense Acquisition Board directed in March 1992. Additionally, in FY 1994 we intend to procure inert SFW T-1 units (without live submunitions) for SEEK EAGLE certification. The SEEK EAGLE program ensures safe carriage and separation of aircraft stores, including munitions, as

well as verification of weapon ballistics accuracy. We are requesting funds for twelve such units.

Other Items

This category totals \$46.7 million of which 78% is for the four countermeasure flares mentioned previously. These countermeasure flares are being procured for training and to fill war reserve stocks and like chaff, are critical to aircrew survivability since they are used to decoy heat seeking missiles away from aircraft. We are procuring three of the flares, MJU-7, MJU-10, and M206, to preclude a serious readiness problem, loss of flares suitable for combat use because of shelf life expiration. Our FY 1994 request counteracts this problem. However, expired shelf life does not render these flares completely useless. They can be use for training and we will utilize them for this purpose so resources will not be wasted. We are carefully managing this problem.

I call your attention to another new line item in this category, ammunition demilitarization. In December 1992, the DoD directed a policy change, effective in FY94, which requires the Services pay for the demilitarization and disposal of ammunition provided by another Service. Our request for two hundred thousand dollars to initiate this process is based on the tonnage of ammunition Air Force

delivered to the Army for demilitarization and disposal in FY 1992.

Fuzes

Our FMU-139 fuze stockage position is sufficient so the focus of the FY 1994 request is on the procurement of the DSU-33 proximity sensor which attaches to the FMU-139 fuze. This proximity sensor provides the fuze with the capability to detonate general purpose bombs at a preset height of burst so that blast and fragmentation effect is optimized, particularly over soft sand and mud terrain. The proximity sensor calculates height of burst by a pulse doppler radar which continuously measures the distance between the ground and the falling bomb. The sensor then sends a firing pulse to the fuze when the preset height of burst is reached.

Other Weapons

The final category is other weapons. We are requesting funding for two weapons this year. The first is for M-16A2 rifles which were last procured in FY 1992. The FY 1993 procurement was deferred until FY 1994 because of a contract delay. Since that issue has been resolved we intend to continue with the procurement of these weapons to replace the older M-16A1 rifles now nearly thirty years old. The M-16A2 has a number of enhanced features that make it far superior to

its predecessor in terms of range, accuracy and lethality when used with the new NATO 5.56mm ammunition.

The other weapon program is the .50 caliber rifle. This rifle is a semi-automatic rifle with a ten round detachable box magazine. The rifle will be used by explosive ordnance disposal technicians to defeat large unexploded ordnance from a safe distance. This type of ordnance is found during wartime post-attack recovery operations and must be cleared before normal operations can resume. We first procured this rifle in FY 1991 to support Operation Desert Storm requirements.

That completes my remarks about the Munitions and Associated Equipment budget program. I would now like to address Vehicular Equipment.

VEHICULAR EQUIPMENT

Vehicles serve as a critical, logistical lifeline for the Air Force. They are integral to the generation and recovery of aircraft; maintenance and launch support of missiles; aircraft cargo loading and offloading, security of vital weapon systems and airfields; and other daily transportation needs of base personnel, equipment and supplies. Simply speaking, the Air Force relies on vehicles to expedite both peacetime and wartime missions.

In this unprecedented time of transition, vehicle requirements too are being tailored as the Air Force downsizes, reorganizes, and adjusts to related mission changes. Over the last year and a half, requirements have been reduced by approximately 9,000 vehicles with more anticipated in the future in line with overall downsizing. Currently, the Air Force requires 135,314 vehicles to conduct day-to-day and wartime missions. With regard to these requirements, there are 17,884 shortages and another 40,512 on-hand vehicles which are eligible for replacement. Of the 58,396 requiring procurement, we are budgeting for only 4,782 in FY94 or 8% of our total vehicle requirements. While we continue to allocate limited resources against the major air commands' highest stated needs, our backlog of 53,614 continues to grow. Given the magnitude of the vehicle shortages, the backlog will not be substantially reduced by assets which become available as a result of force drawdowns; many of these vehicles already exceed their economical life and redistribution would not be cost-effective.

The total foreign-buy program continues to decline. Currently, it is only \$1.5 million, recognizing the impact of dollar devaluation and force drawdowns. Procurement is primarily for general purpose vehicles in Japan and indigenous vehicles required for Air Force Office of Special Investigations covert operations.

I will now briefly describe each of the six vehicular equipment categories.

Special Purpose Vehicles

The 485 vehicles identified for purchase in FY 1994 include aircraft refueling trucks, maintenance trucks, and aircraft tow tractors. Of the \$32.4 million requested, more than half, \$17.6 million is required to buy 154 units in the second year of a five year contract for R-11, 6,000 gallon aircraft refueling trucks. This five year contract will provide 618 refuelers, less than one-half the current buy requirement. The remaining \$14.7 million is for numerous individual items each with a procurement value of less than \$2 million.

Fire Fighting Equipment

Emergency fire and crash rescue equipment provides crash and structural fire protection and rescue capability for Air Force facilities, aircraft, and personnel. We require \$12.7 million to procure 76 emergency fire and crash trucks. \$5.8 million is requested to continue procurement of P-22 2-wheel-drive and P-24 4-wheel drive structural fire trucks. \$2.2 million is requested to initiate a multiyear buy of Heavy Rescue Vehicles, a new start which will replace the P-10 crash rescue vehicle designed to provide forcible entry into damaged/burning aircraft for the purpose of extracting pilot

and air crew. \$2.9 million will conclude the multiyear buy of P-26 water resupply tanker trucks.

The remaining \$1.8 million will be used to procure two P-21 Hi-reach trucks and two P-23 crash trucks.

Materials Handling Equipment

With the emphasis shifting from having fully equipped fighting forces in place at fixed overseas locations to prepositioning a marginal force and deploying armies, equipment, and supplies from CONUS to overseas hot spots as required, there is a need for greater cargo throughput capacity. In FY94, we are requesting \$27.6 million to begin procurement of a 60,000 pound capacity (60K) cargo loader. The acquisition plan entails downselecting from one of the two development contractors and entering a multiyear contract. This new generation loader will replace several different types of aircraft loaders and enable deployed forces to offload both military and civilian cargo aircraft with a single type of loader. This buy will also reduce the need for cumbersome wide-body loaders which require extensive disassembly prior to shipment. The new loader will give us the throughput capacity required to support current rapid deployment philosophies. Our current need is defined as 260 for peacetime and 100 additional for war reserve. In addition to the 60K loaders, we are procuring 10,000 pound capacity forklifts and 50,000 pound capacity container handlers, also

vital links in the Air Force's cargo movement system. In all, we plan to purchase 245 vehicles at \$40.5 million in FY94.

Cargo-Utility Vehicles

Vehicles in this category are of both commercial and military design. The FY94 procurement consists primarily of light and medium duty cargo trucks. These trucks provide the backbone of transportation, supply, and maintenance units that support flightline and other operational missions. Because of austere funding levels in this account, no pickup trucks were budgeted in FY92 or FY93. The major commands have expressed an urgent need following this two year hiatus and have placed a high priority on pickups in the FY94 budget. Therefore our request includes \$21.9 million to buy 2,223 pickups in FY94. Other equipment being purchased in significant numbers in this category are cargo trailers of various capacities. Also included in this category is a request for \$0.8 million for light trucks to support the Civil Air Patrol. Overall, funding in FY94 will buy 3156 cargo-utility vehicles at a cost of \$39.7 million.

Base Maintenance Support and Construction Equipment

Vehicles in this category are used primarily by the civil engineers in providing maintenance of runways, roads, pavements and grounds. Additionally, capability is provided to conduct sanitary landfill operations, water source drilling

for deployed units and repair/construction of base physical plant requirements. Four well drilling systems are included in this category for \$3.5 million. While appearing to be a new start in FY94, these are actually required to replace existing wornout equipment assigned to our Red Horse units. Vehicle modifications and initial spares are also included in this category. Overall, we require \$12 million in FY94 to purchase 110 vehicles. The majority of the funding is required to procure construction equipment, runway sweepers, and road graders with a procurement value of under \$2.0 million.

Passenger Carrying Vehicles

This category includes ambulances, and law enforcement vehicles. Also included are funds to replace two heavy armored sedans required to counter the terrorist threat in Europe. Additionally, there are 77 buses budgeted which will be used primarily for transportation of aircrews and posting of security forces. Our funding request of \$18 million will purchase 710 vehicles.

This concludes the Vehicular Equipment overview. I will now address the third budget category, Electronics and Telecommunications.

ELECTRONICS AND TELECOMMUNICATIONS EQUIPMENT

The Electronics and Telecommunications program acquires Command, Control, Communications, and Computer (C4) systems and equipment in support of Air Force, DOD, and other federal agency operations. This equipment ranges from small handheld radios to large, satellite ground station control networks. The C4 equipment acquired with Other Procurement funds is used only in ground applications. For clarity of mission relationships, I have grouped programs by functional categories rather than the traditional budget categories. Our total FY 1994 Electronics and Telecommunications request is \$1,147.5 million; down \$333.5 million from FY 1993. This equates to a 25% negative growth which can largely be attributed to decreases in two categories, COMSEC and Logistics/Training, which I will detail later in my statement. I will now discuss the various categories.

COMSEC

The Air Force Communications Security (COMSEC) program procures a wide range of cryptographic equipment needed to secure both voice and data communications in support of nuclear forces, theater operations and power projection, airlift and tankers, and space and command, control, communications and intelligence (C3I) systems. Results of our efforts in the COMSEC arena were key factors in the success of

combat operations during the Persian Gulf War. Hostile forces were denied critical intelligence information because of use of cryptographic equipment in the majority of our C3I. Down \$30.1 million from FY 1993, requirements total \$26.1 million. Funding will continue procurement of cryptographic equipment to protect non-secured systems and replace existing cryptographic devices which are either vulnerable or becoming obsolete.

Intelligence

Intelligence is a crucial variable for combat forces. As important as collection is, dissemination of intelligence to the right people at the right time is the ultimate measure of success. The Air Force contributes greatly to this process through the procurement and use of sophisticated intelligence equipment. Details for these intelligence programs can be provided on a need-to-know basis. Our FY 1994 request of \$37.0 million procures new equipment, modifications and initial spares.

Strategic/Space Systems

Equipment in this category supports strategic defense, space programs, and command and control of strategic forces. In this post Cold War environment of reduced strategic posturing, there is an ever present need to continue modernization of our Tactical Warning and Attack Assessment

(TW/AA) sensors and supporting command, control and communications (C3) systems. With reduced alert posture and standdown of vital command and control platforms systems such as Looking Glass, our sensing and C3 systems are paramount to successful strategic defense. I will now discuss some of the significant strategic/space programs associated with our FY 1994 request.

Defense Support Program. The Defense Support Program (DSP) is a mature, operational system with the high priority mission of early warning of ballistic missile attack. Improvements to mission capability and survivability are underway. The FY 1994 funding of \$38.6 million will continue efforts begun in FY 1993 by continuing replacement of mission processing computers. The current mission processing computers at the fixed stations are approaching the end of their life cycle and are overloaded. Without these upgrades, satellite users will be unable to take full advantage of DSP satellite capabilities.

Strategic Command and Control. This program provides for procurement of mission critical systems in support of US Strategic Command (USSTRATCOM) and the National Military Command System (NMCS), which ensure the President has effective command and control of the Twin Triad (nuclear and conventional forces). In addition, this program provides support for Air Combat Command (ACC). Major efforts include the Strategic War Planning System (SWPS), which is the only

computer system that produces the nation's nuclear war plan and performs bomber conventional planning. SWPS was a key planning tool for the bomber force during the Persian Gulf War. Funds also provide support for the NMCS by replacing aging components of the Improved Emergency Message Automatic Transmission System (IEMATS). IEMATS is the nuclear command and control system used to support the Single Integrated Operations Plan (SIOP). Funding also continues implementation of the Crisis Management Automated Data Processing Equipment System for the National Military Command Center. This program also contains \$33.7 million to procure ground computer and communications systems that support the B-2 weapon system which relies heavily on computers and communications equipment to fulfill its operational role. B-1B support is also included in this program and consists of upgrades to communications and computer systems in the B-1B technical support center (TSC) at Oklahoma City Air Logistics Center which provides quick response engineering support for B-1B problem analysis. TSC tracking includes composite damage and repair, fuel leak information, and engineering deficiency correction. In addition, the TSC provides a real-time communications link between the depot, Air Combat Command, B-1B operating bases, and contractors in support of repair/problem resolution. Our FY 1994 request also includes \$2.2 million to continue upgrade of Strategic Command's Mobile Alternate Headquarters which provides an austere force

management capability during SIOP trans/post-attack periods. These funds also continue an upgrade of the unit command posts at eleven additional Air Combat Command bases.

Defense Meteorological Satellite Program. The Defense Meteorological Satellite Program (DMSP) is a fielded, joint service program which provides meteorological data to support worldwide DoD operations. Timely, high quality data are supplied to the Air Force Global Weather Central, to the Navy's Fleet Numerical Oceanography Center, and to deployed fixed and mobile ground and ship-based tactical data receipt and processing terminals worldwide. DMSP was the primary source of weather information during the Persian Gulf War. This program continues upgrades to the current transportable terminals and procures small tactical terminals which provide quick reaction, highly mobile equipment for an early deployment capability to receive and process weather satellite data. Our FY 1994 request is for \$16.6 million.

Cheyenne Mountain Complex. The NORAD Command Center (Granite Sentry) located in Cheyenne Mountain provides the Commander-in-Chief of NORAD with the facilities and communications necessary to exercise command and control over his assigned forces and to provide essential decision-making information to the National Command Authorities. The Cheyenne Mountain upgrade is an on-going program designed to modernize and enhance the core software, computer resources, communications connectivity, and the various sub-elements of

integration. Requested FY 1994 funding is \$29.3 million. These funds continue procurement of additional Survivable Communications Integration System (SCIS) equipments to support end-to-end testing. Additionally, FY 1994 funds procure replacement hardware for the NORAD Command Center (Granite Sentry) and Alternate Processing and Correlation Center (APCC). These funds also procure Communications System Segment replacement equipment for the Space and Warning Systems Center at Cheyenne Mountain Air Force Base CO. The FY 1994 request will also acquire miscellaneous computer equipment for the Space Defense Operations Center, a Cheyenne Mountain security net and Cheyenne Mountain communications infrastructure equipment. Requested dollars also continue funding for an upgrade to the SPACECOM Mobile Command and Control System. The final item funded in this category is the Cheyenne Mountain Training System which was previously funded in the Tactical Warning System Support line. FY 1994 funds procure Granite Sentry Automated Data Processing Equipment (ADPE) and workstations/graphics for the Air Defense Operations Center and NORAD Command Center simulators.

Military Satellite Communication (MILSATCOM). This program provides flexible, worldwide satellite coverage for military users with mobile and high capacity user equipment and consists of two elements, Milstar Terminals and Ultra High Frequency MILSATCOM radios. FY 1994 Milstar funding completely buys the Transportable Time Distribution Subsystem

(TTDS) which will allow mobile users to initialize an off-the-air terminal with accurate time, frequency, positional data and network parameters for satellite acquisition. This funding also continues procurement of Extremely High Frequency (EHF) Support Shelters that house and protect the associated EHF equipment, and Solid State Uninterruptible Power Supplies to protect equipment in the event of primary power fluctuations. Requested dollars also procure five Satellite Mission Control Subsystems (SMCS) and upgrade seven preproduction units to production configuration. The SMCS provides operational mission control for the Milstar constellations. Additionally, UHF MILSATCOM FY 1994 funds procure 88 of the 2218 UHF ground terminals required. These terminals will provide worldwide interoperable UHF MILSATCOM to Air Mobility Command forces. The Army is DoD Executive Agent for this program. The total FY 1994 MILSATCOM request is for \$85.3 million.

Air Force Satellite Control Network. The Air Force Satellite Control Network (AFSCN), is a national asset tasked to support the research, development, test, evaluation and operation of satellite systems. AFSCN supports these requirements through satellite command and control, tracking, and the collection and dissemination of real-time telemetry. Data is collected and processed through a series of worldwide remote tracking stations, an extensive communications network, and two central control nodes (Onizuka AFB, California and

Falcon AFB, Colorado). The FY 1994 program of \$32.5 million will continue upgrade of the command and control system and the consolidated space test center. These upgrades are requested to maintain AFSCN compatibility with changes in current and future satellite programs and enhanced test and research capability.

Eastern Space and Missile Center (ESMC)/Western Space and Missile Center (WSMC) Improvement and Modernization (I&M).

The two national ranges, the Eastern Test Range at Patrick AFB, Florida and the Western Test Range at Vandenberg AFB, California, provide primary support for all U.S. strategic missile and space launch programs some of which are Space Shuttle, Peacekeeper, Minuteman, Trident, Atlas, Poseidon, cruise missiles, Titan, Delta, Scout, Pegasus, and JCS Special Missions), conduct radar tracking and telemetry tests in support of aeronautical test operations, and support operational testing of the United Kingdom's Polaris ballistic launches. Our FY 1994 request of \$117.3 million is \$27.8 million more than last year and represents a concerted effort by the Air Force to upgrade and modernize outdated technologies and logistically unsupportable equipment at both the Eastern and Western ranges as well as the remote range tracking sites. Numerous projects are programmed to replace or upgrade portions of tracking and instrumentation systems which have become unsupportable or incapable of meeting

mission requirements. This concludes the strategic portion of our request. The next category covers Tactical Systems.

Tactical Systems

Modern interoperable, jam-resistant, secure Command, Control and Communications (C3) equipment for theater and tactical forces are essential to effective combat operations. The importance of these systems was clearly shown in the Persian Gulf War; virtually all C3 functions were provided by tactical communications systems. Major programs are:

Tactical Command and Control Systems Improvements (TACSI). The Theater Air Control System (TACS) provides the means for centralized control and decentralized execution of tactical combat aircraft. The TACS improvement program acquires state-of-the-art replacement equipment and capabilities essential to survival and combat effectiveness of tactical command and control. The FY 1994 program continues funding for the Contingency TACS Automated Planning System (CTAPS), a family of operations/communications shelters for automating the planning and execution of the air campaign which replace antiquated and logistically unsupportable equipment. Also included in this program are Mission Planning System upgrades which will fuse mission/flight planning, intelligence, weather, electronic combat, and navigation information and allow pilots to transport all required mission planning information to the aircraft in the form of a single

tape cartridge. The FY 1994 TACSI request is for \$55.9 million.

Air Mobility Command (AMC) Command and Control (AMCC2).

As the Department of Defense single manager for airlift, the AMC commander must be able to exercise effective C2 over his airlift forces. The AMC C2 program is an umbrella program which continues upgrades to centralized command and control systems of the AMC airlift fleet in accordance with developed AMC C2 architecture to optimize use of our limited airlift resources. Our FY 1994 request of \$42.8 million places added emphasis on the on-going command and control Information Processing System (IPS) program which provides integrated, command-wide automation capabilities and communications interfaces for airlift forces, both active and Air Reserve Forces. This funding also begins procurement of the consolidated Aerial Port System which automates command and control support for transportation information not provided by IPS at 21 fixed aerial ports. Funding also provides improvement for C4 multimedia connectivity at selected AMC bases. Additionally, funding continues on-going procurement for the Ground Digital Communications Terminals, Global Decision Support System hardware and HF radio allied support.

Satellite Terminals. Satellite communications are an important part of Air Force communications connectivity for both fixed and tactical forces. The bulk of communications in the Persian Gulf War were carried via satellite connectivity.

The satellite terminal program procures ground satellite equipment in support of Unified and Specified CINCs, the National Command Authorities, U.S. combat forces and NATO. FY 1994 funding procures additional equipment for the Ground Mobile Forces Satellite Communication program to support selected elements of directed special operations. Included is a single channel transponder injection system for US Strategic Command which provides emergency action message and force direction message dissemination capability to selected command centers for control of nuclear forces.

Tactical C-E Equipment. The Tactical C-E Equipment program will acquire communications and computer equipment to support command and control systems for Pacific Air Forces, United States Air Forces Europe and Air Combat Command in support of deployable systems of the Theater Air Control System and Combat Communications Units. The FY 1994 request of \$60.9 million includes consolidation of funding for Air Force Wing-level Command and Control Systems (AFWCCS) and Base Recovery Communications Systems (BRCS). AFWCCS provides the wing commander and his staff a composite picture of total wing resources for command and control of his forces; BRCS provides a command and control link between support group command centers and subordinate forces to manage base recovery efforts. The \$21.4 million increase from FY 1993 is a result of consolidating AFWCCS and BRSC into this budget line where similar types of efforts are funded. Funds also continue

procurement of a family of lightweight, modular, fully integrated, deployable communications equipment that will be used to augment or replace existing assets to provide an early deployment command and control capability for our combat forces. Additionally, funds continue integration of the Army's SINCGARS radio into the PACER SPEAK radio system permitting interoperability with Army maneuver units and fire support units supported by Air Force Theater Air Control Parties. Procurement continues for Digital Communications Terminals which are small, jam-resistant, hand-held message processors for point-to-point and netted communications to coordinate and direct close air support to ground maneuver units.

Anti-Jam Voice. Jam-Resistant communications are essential to the tactical commander to enhance the probability of sustained and successful communications with deployed and dispersed units. The Anti-Jam Voice program procures communications systems which fall into this category. The FY 1994 program continues the procurement of the Army's standard field SINCGARS radio (PRC-119) for Air Force units to allow interoperability with Army units they support. These radios played a major role in coordinating combat operations between the Army and Air Force units during the Persian Gulf War. Our FY 1994 request is for \$9.9 million.

Base Communications-Electronics Systems

The Air Force has requirements at all its bases for common user base support communications systems. These common, standard systems are referred to as Base Communications Electronics Systems. Included in this category is a large variety of systems which cover all facets of base operations. These systems make up the infrastructure that is the foundation of support for all Air Force combat operations. Our major programs are addressed below:

Weather Observation & Forecast. Essential to Air Force and Army operations is timely, accurate weather information. Under the FY 1994 program, upgrades and replacements of worldwide systems used by the Air Force and Army will continue. Major efforts underway are the Automated Weather Distribution System (AWDS) and Next Generation Weather Radar (NEXRAD) programs. These two on-going programs modernize 1940-1950s era base weather stations at Air Force and Army sites worldwide. AWDS allows more rapid preparation of forecasts in severe weather and will disseminate and alert base operations and air traffic control personnel when weather conditions change. This capability results in significant improvements in flight safety and resource protection. FY 1994 funding continues pre-planned product improvement which adds six additional capabilities to the AWDS system. NEXRAD replaces current aging fixed weather radars with new technology radars and remote terminals which enhance the Air .

Force's ability to protect scarce military resources from severe weather conditions. NEXRAD is a joint DOD, Department of Transportation, and Department of Commerce (DOC) program with DOC as the lead agency. Our total FY 1994 request for weather programs is \$47.6 million.

Automatic Data Processing Equipment (ADPE). This procurement line acts as an umbrella program for Air Force-wide ADPE acquisitions or equipment additions to government-owned computer systems. Items to be purchased are commercially available ADPE from various manufacturers and third-party vendors. The systems and system upgrades directly support operational mission requirements and enhance both mission productivity and warfighting capability. The Air Force estimates a 3.5 to 1 payback in productivity and manpower savings for each dollar spent on ADPE and has already reduced the budget accordingly. Some of our larger on-going efforts funded in FY 1994 include: (1) Personnel Concepts III (PC-III) which enhances the base level portion of the total force personnel data system and includes the Personnel Data System - Civilian (PDS-C), a designated DoD Corporate Information Management (CIM) standard system, (2) Normalized Support for Space and Warning Systems which will provide normalized logistical support for a shared core of common computer support equipment linking 35 different Space Command systems thus eliminating the duplicative suites of equipment and proprietary contractor support for each system, (3)

Embedded Computer Resources Support Improvement Program (ESIP) which procures hardware to improve productivity and quality of weapons system software, (4) Procurement Management Information Systems II (PROMIS II) which extends productivity enhancements to the Air Force recruiting services system resulting in cost savings, increased recruiter effectiveness and a reduction of 145 manpower positions, and (5) the Advanced Training System (ATS) which provides automation for technical and medical service training wings to allow them to train more effectively. Also included is upgraded computer support for the Air University and Air Force Academy. The above programs account for over one-half of our FY 1994 request for \$64.2 million.

ADP Operations Consolidation. This budget line supports the DoD directed Defense Management Review (DMR) to consolidate/collocate Automated Data Processing (ADP) operations and design activities throughout the Air Force. This DMR addressed five major areas: standard base level computers, Major Command non-command and control, Air Force Material Command's wholesale logistics and scientific computing systems, and supporting communications infrastructure. Full implementation of the Air Force plan is estimated to save approximately one billion dollars by the year 2000. These savings have already been factored from the budget. The Standard Base Level Computer (SBLC) consolidation will result in five regional processing centers, eliminating

mainframe systems at 72 CONUS bases as well as 121 comptroller and 101 Air Reserve Components computer systems. Our FY 1994 request of \$67.9 million will complete the DMR consolidation directive.

WWMCCS/ADPE. WWMCCS (Worldwide Military Command and Control System) is a system which supports National Command Authorities (NCA), Joint Chief of Staff (JCS), Commander in Chiefs and Military Departments through all phases of crisis and conflict dealing with conventional operations. WWMCCS software is being modernized to provide an integrated operational decision environment for planning use of conventional and support forces. Each service must fund their own hardware upgrades and replacements to support the upgraded software. FY 1994 funding of \$22.0 million continues site-by-site WWMCS host hardware upgrades, procurement of local area network equipment and WWMCCS workstation procurement.

Base Level Data Automation. The Base Level Data Automation program provides standard data processing support to virtually every base level functional area at Air Force Reserve, Air National Guard, and active Air Force installations world-wide. Our FY 1994 request continues five well-established systems: (1) the Base Level Computer Program which upgrades five CONUS Regional Processing Centers and overseas base-level systems, (2) the Cargo Movement Operations System (CMOS) which provides timely and accurate movement and tracking information of cargo relative to mobilization of

forces, (3) the Combat Ammunition System (CAS) to improve Air Force combat capability by providing effective munitions logistics command and control at each level of combat direction and execution, (4) Standard System Modernization which procures hardware to modernize critical base level standard systems migrating them to an open system environment, and (5) Fuels Automated Management System (FAMS) which procures state-of-the-art hardware to automate the management and control of the Air Force's petroleum resources that support both peacetime and wartime operations. FY 1994 funds continue efforts on the five on-going programs above and begin procurement for an upgrade to the Information Processing Management System (IPMS), which will enable the Air Force to handle increasingly sophisticated ADPE inventory management requirements resulting from implementation of fee-for-service inventory tracking. Our FY 1994 request totals \$32.9 million.

Telephone Exchange. The Air Force is continuing the process of modernizing our base communications infrastructure within this line. This includes many old, under-capacity telephone systems as well as leased systems. Growth in this line results from a conscious Air Force effort to improve base communications networks especially in view of base closures and the resulting consolidation of Air Force missions on remaining bases. This on-going effort prioritizes all requirements; replaces failing systems with new digital, computer-based exchanges; upgrades or replaces outdated

transmission systems; and finally, buys out expensive leases. Our FY 1994 request for \$89.7 million continues this effort with replacement of telephone switching systems at five locations; a major distribution/premise equipment replacement project at Kirkland AFB NM and smaller distribution projects at an additional five locations; 20 Base Information Digital Distribution System (BIDDS) management subsystem installations; three medical facility installations; and telecommunications upgrades at 10 Air National Guard locations.

Air Force Physical Security. Increasing investment costs of weapon systems, continuing emphasis on anti-terrorist programs, and the cost effectiveness of replacing obsolete or manpower intensive systems demand procurement of highly advanced security systems that protect critical Air Force resources. The FY 1994 OPAF request contains \$32.4 million for continued procurement of such items including air base defense communications equipment, perimeter sensors, aircraft shelter sensors, intrusion detection systems and anti-terrorist physical security equipment. These security systems negate need for increased manpower.

Logistics Support and Training

The final category is the Logistics Support and Training program. Procurements include spares and repair parts, equipment modifications, training equipment and essential

communications support items each costing less than \$2.0 million.

Spares and Repair Parts. This budget line provides funding for initial spares for newly acquired electronics and telecommunications equipment items and replenishment spares (follow-on spares support) for classified programs which are exempt from Stock Fund management. Effective in FY 1994, the method of funding initial spares will change. Rather than total procurement in this line, initial spares will be procured using obligation authority in the Air Force Stock Fund which is part of the Defense Business Operations Fund (DBOF). Funds requested in this budget line will reimburse the stock fund as outlays occur. FY 1994 funding for initial spares is based on a first year historical outlay rate of 7.8 percent. Total funding requested in FY 1994 for both initial and replenishment spares is \$26.2 million.

Items Less Than \$2.0 Million. This budget line funds numerous items of electronics and telecommunications equipment supporting command Table of Allowance authorizations. Air Force units requisition items such as radios, telephones, recorders, and test equipment based on shortage or replacement needs. Also contained within this line is replacement Power Conditioning and Continuation Interface Equipment (PCCIE) backup power for critical communications and computer systems. We require \$4.5 million and \$8.2 million respectively for these two programs for a total of \$12.7 million.

Permanent Modifications. Permanent Modifications are configuration changes to in-service systems and equipment which correct material or other deficiencies, or which add or delete capability. With the present fiscal constraints on our budget, these efforts allow the Air Force to keep pace with changing and current mission requirements without the added acquisition cost of procurement for new systems. Two groups of permanent modifications totalling \$41.6 million are included in our budget: Space Systems and Communications Electronics Modifications.

Space Systems Modifications: This budget P-1 line total \$25.8 million and addresses Air Force Space Command's (AFSPACCOM) modification programs on ground equipment in support of space systems. Much of the effort for this request has been driven by years of dependence on expensive, sole source contractor logistics support for space systems. Many of our modifications are a result of an effort to normalize logistics support and provide organic capability within the Air Force. FY 1994 begins modification on the Air Force Satellite Control Network and continues on-going efforts on the Defense Meteorological Satellite Program, NAVSTAR Global Positioning System (GPS) and the 496L Spacetrack Network. These modifications are essential to keep space systems mission capable and ready to support our combat forces and will significantly increase the mean-time-between failure.

Communications-Electronics Modifications (Formerly known as Class IV Modifications). This budget line contains our on-going efforts to modernize and upgrade communications-electronics equipment to enable us to continue to meet mission requirements. Our FY 1994 request of \$15.8 million continues on-going modifications within two major communications systems: (1) the Atmospheric Early Warning System (AEWS) where upgrades are in progress on mission computers and long-range radars, and (2) Air Traffic Control and Landing Systems where modifications are underway on the mobile landing and control central.

Range Improvement Program. This program procures equipment for Air Force ranges to support training/evaluation of aircrews and operational testing of weapon system tactics under simulated combat conditions. The first generation systems, capable of handling eight aircraft simultaneously are generally referred to as Air Combat Maneuvering Instrumentation (ACMI) systems. The second generation systems, capable of handling 36 aircraft simultaneously are known as Measurement and Debriefing Systems (MDS). The next generation system, scheduled to begin in FY 1994 in a joint program with the Navy, is known as the Joint Air Combat Training System (JACTS) and will be capable of handling up to 100 aircraft simultaneously. FY 1994 funding upgrades the Okinawa and Luke AFB ranges from an eight-aircraft system to a 36-aircraft system. Additionally, FY 1994 funds will procure

hardware for Nellis AFB and the Tactical Air Range Integration Facility at China Lake CA to provide software configuration control for the lifecycle of JACTS. JACTS capabilities will subsequently be integrated into several existing range instrumentation systems including the Congressionally directed Alaska-Yukon site. FY 1994 funds also continue procurement of Mini-Multiple Threat Emitters which simulate mobile threat systems and provide active threat emissions for use in aircrew training. Finally, FY 1994 supports the Tactics and Training Route Complex (TTRC)/Route Integration Instrumentation System (RIIS) which provides a realistic environment for Air Combat Command (ACC) aircrews to simulate a low altitude penetration and weapons delivery in hostile territory. The funds will complete additional range equipment integration, updates to the existing computer system and integration of smaller "backyard" ranges.

This concludes an overview of the key programs covered by the Electronics and Telecommunications budget activity. Before proceeding, I would like to reiterate the central theme throughout the FY 1994 request, and that is the request primarily supports "on-going" programs. Continuing and completing on-going programs as planned and costed is our primary goal. Another note of interest is the important part equipment and systems in this budget program played in the

Persian Gulf War. Virtually every program included in this budget request provided direct support to the war effort.

OTHER BASE MAINTENANCE AND SUPPORT EQUIPMENT

This budget activity is truly the "other" of Other Procurement. It contains a wide array of critical infrastructure and personal support items needed to equip and operate the total force on a daily basis. The items are not glamorous nor do they attract attention until they are not there. Every conflict validates this idea. Desert Storm was the most recent example where airlift pallets and nets were used to move millions of pounds of cargo. Also used in theater were chemical and biological defense equipment, life preservers, life rafts, night vision goggles, mobile electric generators, aircraft refueling and test/calibration equipment. While most of the attention in the media regarding defense during Desert Shield/Storm focused on the high profile and expensive weapon systems, we must always recognize that wars are also fought with and won with a lot of very common and very low-tech equipment. Since we cannot predict when the next "Desert Storm" will come, we must continue to invest in the "meat and potatoes" equipment this budget activity represents.

The current focus in Defense is on the "right-sizing" of our force structure based on the political and economic

changes the world has witnessed in the last few years. The overall force restructuring, including the base closure/realignment process, have been factored in to our FY 1994 request. Funding for projects at a base that has been selected for closure, or has been proposed for closure, is scrutinized based on urgency of need and forecasted amortization. Our total FY 1994 budget request, with the removal of Special Projects, is \$ 387 million. This is higher than the \$267 million requested in FY 1993 due to the introduction of two programs into this budget activity. Funding for Contract Administration/Audit has been shifted this year from the operations and maintenance account to the procurement accounts. This represents a change from the way the budget was presented last year and reflects a Congressional and Departmental initiative to move toward mission budgeting which calls for an improved method of budgeting and justifying resources. The visibility of total costs related to contract awards and administrative requirements is improved in this presentation because support service funding for related contracts is included in this appropriation. Funding for the procurement of equipment necessary to support environmental compliance, spill response, and pollution prevention has also been made more visible with the establishment of an Environmental Projects line under the Base Support Equipment category.

I will now discuss the specific items requested in FY 1994 by category.

Test Equipment

We are requesting \$22.7 million in FY 1994 to procure electronic calibration and test equipment used throughout the Air Force to maintain the entire spectrum of weapon systems. Included are calibration standards and equipment, oscilloscopes, signal generators, electronic counters, and spectrum analyzers, to name a few. Today's weapon systems require more sophisticated test equipment to provide the tolerances and measurements necessary to satisfy the accuracies demanded by these state-of-the-art systems. The program supports 101 Air Force PMELs, including four Air National Guard (ANG) laboratories.

Personal Safety and Rescue Equipment

This category consists of night vision goggles, breathing apparatus, chemical and biological defense equipment, life preservers, life rafts, reverse osmosis desalinators, and other life support/life saving equipment. Night vision goggles provide enhanced nighttime capability for our Air Base Ground Defense and other Security Police activities as well as our tactical and Special Operations Forces (SOF) aircrews. The breathing apparatus provides two hours of self-contained air and up to eight hours of filtered air for use in fire-

rescue and chemical contaminated operations. Chemical and biological defense equipment includes aircrew eye/respiratory protection equipment, radiation detection equipment, and equipment to detect the presence of mustard agents. This equipment is critical for increased survivability, and for enabling Air Force units to sustain operations in a chemical or biological warfare environment. Total requested for personal safety and rescue is \$18.0 million in FY 1994.

Depot Plant and Material Handling Equipment

Depot Plant and Material Handling Equipment automates material processing at bases and base air terminals worldwide. Mechanization equipment includes high density storage systems, pallet handling systems, wire guided storage systems, automatic stackers, and automatic receiving, storage and retrieval systems. Mechanized material handling equipment helps eliminate multiple manual operations and provides improved response, as well as efficient and accurate parts control, inventory, and maintenance. The improved productivity gained by the use of these systems results in the average system paying for itself in less than four years.

This program also includes all industrial plant equipment to support maintenance activities at base level. Industrial plant equipment provided by the requested funding includes equipment such as welders, lathes, grinders, and drilling machines used in the repair and maintenance of aircraft

engines, hydraulic and pneudraulic systems, landing gear, airframe components, and instrumentation. While past investments have improved support, much of the industrial plant equipment is still over 20 years old and beyond its life expectancy. Rapid deterioration, limited parts availability, and costly maintenance remain concerns. Replacement of this antiquated equipment will ensure a more effective aircraft parts manufacture and repair process, greatly improving readiness and sustainability by reducing aircraft downtime and increasing aircraft availability. The total FY 1994 funding requested is \$22.4 million.

Electrical Equipment

The Electrical Equipment category includes mobile electric power generators ranging from 5KW to 60KW, and two generator power plants. These generators are required to supply critical primary and backup power to hospitals, communications systems, radar systems, control towers, and runway lighting systems, as well as other maintenance facilities. This electrical equipment is critical not only for daily use on air bases, but also to units at remote locations and units with mobility commitments to forward operating locations. Total requested for electrical equipment is \$11.4 million in FY 1994.

Base Support Equipment

The Base Support Equipment funding request totals \$147.9 million FY 1994, an increase from the \$111.2 million in FY 1993 due primarily to the establishment of the Environmental Projects program I discussed earlier. Several programs ranging from medical and dental equipment war reserve material to airlift cargo pallets and nets are included herein. Other programs that come under Base Support include photographic equipment, mobility equipment, air base operability, base procured investment equipment, tactical shelters, productivity programs, and spare parts. I would like to discuss some of the larger dollar programs, beginning with the newly established environmental projects.

Environmental Projects. This program provides for procurement of equipment necessary to support environmental compliance, spill response, and pollution prevention. Included is recycling equipment, hazardous waste disposal equipment, ozone depleting chemicals alternate technology equipment, spill cleanup and recovery equipment, filtration equipment, volume reduction equipment, metals recovery equipment, and industrial waste water treatment equipment. Requirements and priorities are driven by environmental emergencies, laws, regulations, as well as a desire to improve management practices with regard to the environment. Requirements are generated by: (1) numerous federal, state, and local environmental laws, such as the Resource

Conservation Recovery Act, (2) Montreal Protocol, (3) spill response, (4) recycling programs, (5) waste minimization initiatives such as distillation of solvents used in painting operations, and paint booths which incorporate pollution prevention technology. In total FY 1994 funding will support over 100 projects at 18 bases. We require \$39.2 million in FY 1994 to begin redressing this problem.

Medical/Dental Equipment. Another very important segment of the Base Support Equipment Program is the Medical and Dental request of \$9.7 million in FY 1994 for war reserve material. Funding will procure Transportable Blood Transshipment Centers (TBTC) for the USAF portion of the DOD blood program. TBTC provides the capability for prepositioning and inter/intra theater transportation of frozen blood at ultra low temperatures greatly increasing storage life, immediate theater availability, and reduces initial surge transportation requirements. This capability is needed to care for individuals injured in combat and return them to their wartime duties as quickly as possible, and reduce the mortality rate.

Base Procured Investment Equipment. Another very important segment of the Base Support Equipment category is Base Procured Investment Equipment (BPIE), with a funding request of \$19.0 million for FY 1994. This program provides commanders the funding to procure non-centrally managed investment items costing over \$15,000. The program gives the

commander the greatly needed flexibility to locally purchase critical equipment to sustain the base infrastructure. Typical items procured are aircraft and vehicle corrosion control equipment, fire alarm systems, copiers, shredders and graphics equipment, specialized laboratory equipment, and dining hall equipment.

Air Base Operability. Funding for air base operability (ABO) equipment is also requested in this category. This program provides equipment to enhance the survivability, recovery, and support infrastructure necessary to sustain air operations from forward-based fixed locations or forward deployed operating locations during conventional and/or chemical attack. The goal of ABO is to defend against air and ground attack, survive any damage inflicted and recover to full operational posture while continuing to generate combat sorties. The FY 1994 request of \$12.8 million will procure rapid utility repair equipment, explosive ordnance disposal equipment, and deployable fire protection systems.

Productivity Enhancement/Investment. The last of the Base Support programs I will address deals with productivity. Productivity Enhancements and Productivity Investments are two programs that center around fast payback capital investments to improve effectiveness and efficiency of Air Force organizations and units. Many of these improvements are generated as suggestions from our intuitive troops in the field, and have been most successful in cutting costs and

reducing manpower. Funding requested in FY 1994 is \$25.9 million.

Special Projects

This is the last category and largest dollar value. However, only a small percentage of the funding is equipment-related. The funding I will address is for First Destination Transportation (FDT), and the new program I identified earlier titled Contract Administration/Audit. FDT funding covers the cost of shipping items from point of acquisition to where it is first received for use, storage, or distribution in the military system. FDT funds transportation costs associated with all procurement appropriations and is considered a must pay bill since it pays for immediate movement of Air Force purchased property from the manufacturers facility. Contract Administration/Audit reflects the portion of the Department's estimate for contract audit and management services that will be incurred as a result of contract awards made in this appropriation. These funds will be used to reimburse Defense Contract Audit Agency (DCAA) and Defense Contract Management Command (DCMC) for services performed in support of programs budgeted in this appropriation. As stated earlier, this represents a change from the way the budget was presented last year.

Mr. Chairman, the Air Force realizes that world-wide political, economic, and military realities along with

domestic fiscal concerns have brought us to a situation today where we need to make substantial basing and force structure changes and reductions. Our goal, within this environment, is to ensure that this smaller force will still be able to meet any contingency. This OPAF request reflects these realities and provides continued support to core systems essential to Air Force missions. As the world situation evolves and we reduce our force, we will continue to posture ourselves to provide the best, most modern communications support, vehicles, combat and personnel equipment as well as the munitions required to ensure proficient air and ground crews and required munitions sustainment.

This concludes my prepared statement, Mr. Chairman. I would like to express my sincere thanks to you and to the members of your Committee for your past support. Your continued support will ensure OPAF funding commensurate with a strong Air Force. I will be pleased to address any questions at this time.

ASSISTANT SECRETARY OF THE AIR FORCE
(ACQUISITION)
PRESENTATION TO



HOUSE APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON DEFENSE
HEARING ON AIR FORCE AIRCRAFT, MISSILE,
& OTHER PROCUREMENT ACTIVITIES

28 APRIL 1993

Air Force Vision for the Future Quality Air Force



Air Force People Building the World's Most Respected Air and
Space Force ... Global Power and Reach for America.

Air Force Mission



The Mission of the Air Force is to Defend the United States through Control and Exploitation of Air and Space

Air Force Roles



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- **Aerospace Control (Control the Combat Environment)**
 - Counterair
 - Counterspace
 - **Force Application (Apply Combat Power)**
 - Strategic Attack
 - Interdiction
 - Close Air Support
 - **Force Enhancement (Multiply Combat Effectiveness)**
 - Airlift
 - Air Refueling
 - Spacelift
 - **Force Support (Sustain Forces)**
 - Base Operability & Defense
 - Logistics
 - Combat Support

Four Principals of DoD Acquisition Policy



- Selectively Upgrade Existing Systems
- Selectively Procure Existing Systems at Low Rates
- Rollover-plus--Continuous Process of Development & Prototyping for New Systems
- Silver Bullet Procurements--A Strategy where Limited Quantities of High Technology New Weapon Systems with Revolutionary Capabilities are Procured

FY94 Federal/DoD Budget Requests

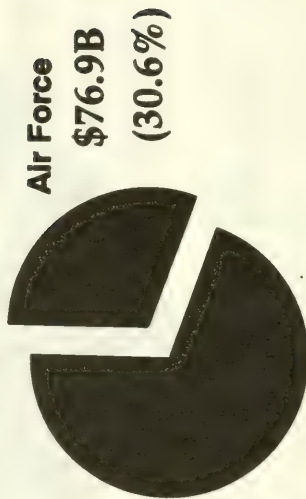
Federal = \$1,517.2B



DoD = \$250.7B
(16%)

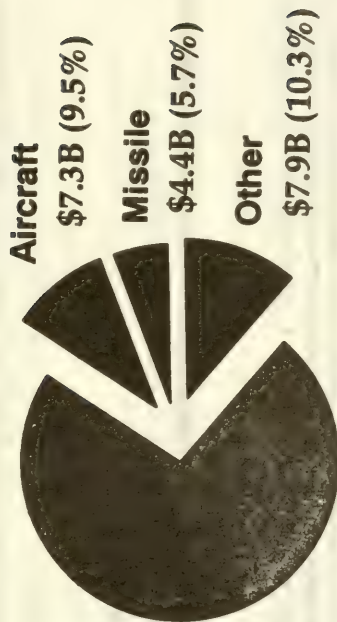
FY94 DoD/AF Budget Requests

DoD Request = \$250.7B



FY94 AF, Aircraft, Missile, & Other Procurement Requests

AF = \$76.9B



Air Force Roles



- **Aerospace Control (Control the Combat Environment)**

- Counterair
- Counterspace

- **Force Application (Apply Combat Power)**

- Strategic Attack
- Interdiction
- Close Air Support

- **Force Enhancement (Multiply Combat Effectiveness)**

- Airlift
- Air Refueling
- Spacelift

- **Force Support (Sustain Forces)**

- Base Operability & Defense
- Logistics
- Combat Support

ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)



CHARACTERISTICS

SCHEDULE

| | | |
|--|--|--------|
| ● All-Environment, Medium Range Air-to-Air Missile | ● F-15 Initial Operational Capability (IOC) | 4Q/91 |
| ● Active Radar Guided | ● F-16 Full Operational Capability | 2Q/92 |
| ● Multi-Target, Launch & Leave | ● DAB Program Review Full-Rate Production | 3Q/92 |
| ● Compatible with all US Air Superiority and Multi-Role Aircraft | ● F/A-18 IOC | 3Q/93* |
| ● Joint Program | ● Pre-Planned Product Improvement Pgm Flt Test | 2Q/94 |
| ● Expanded Employment Envelope Over AIM-7 SPARROW Significantly Improving Aircraft Survivability | | |
| ● Operational on F-15s & F-16s | | |

* Slip Due to Completion of OPEVAL

Page 9

AIM-120 AMRAAM

Procurement



| <u>FY94 FUNDING</u> | <u>\$496.1M*</u> | <u>FY94 PROGRAM</u> |
|---------------------|------------------|--|
| ● Flyaway | \$467.2 | ● 725 USAF Missiles |
| | | ● Full-rate Production |
| | | ● Competitive Split Between Leader
(Hughes Aircraft Corp.) & Follower
(Raytheon Corp.) |
| ● DATA/PSE/Training | \$20.6 | ● AMRAAM Depot Establishment |
| ● Initial Spares | \$8.3 | ● \$14.5M/24 Seek Eagle MsIs (not Shown) |

| <u>\$M</u> | <u>Prior</u> | <u>FY92</u> | <u>FY93</u> | <u>FY94 To Complete</u> | <u>Total</u> |
|------------|--------------|-------------|-------------|-------------------------|--------------|
| Proc | 3699.0 | 546.3 | 630.0 | 496.1 | 8454.1 |
| Qty Buy | 2767 | 700 | 1000 | 725 | 9533 |

* Does not include SEEK EAGLE - Data as of 15 Mar 93; Reflects \$65M Reduction from Original Submission & Inflation cut



Air Force Roles

- Aerospace Control (Control the Combat Environment)
 - Counterair
 - Counterspace
- Force Application (Apply Combat Power)
 - Strategic Attack
 - Interdiction
 - Close Air Support
- Force Enhancement (Multiply Combat Effectiveness)
 - Airlift
 - Air Refueling
 - Spacelift
- Force Support (Sustain Forces)
 - Base Operability & Defense
 - Logistics
 - Combat Support

B-1 LONG RANGE COMBAT AIRCRAFT



CHARACTERISTICS

- Designed for Nuclear and Conventional Role
- Long Range, Heavy Payloads
- Premier Low Altitude Penetrator
- Becoming the Conventional Workhorse
- Global Firepower on Short Notice
- Accurate and Precise Advanced Weapons Will Improve Effectiveness

SCHEDULE

- IOC Sep 86
- Began Nuclear Alert Oct 86
- 100th Aircraft Delivered Apr 88
- Conventional Bomber Roadmap Jun 92
- B-1 Four-Star Summit Sep 92
- OSD Review Feb 93
- RFP Release (Integrator) Apr 93
- ECM EMD Start Late 94



B-1 Procurement

283

| FY94 FUNDING | | FY94 PROGRAM | |
|-------------------------------------|---------|---|--|
| ● Deferred Support Equipment | \$46.5 | ● Reduce Dependency on Contractor Support | |
| ● ICS | \$116.0 | ● Depot Support | |
| ● 1122 Antenna | \$8.6 | ● Year 3 of Antenna Mod | |
| ● LANCER 101 | \$13.4 | ● Engine Safety Improvements | |
| ● Conventional Weapons Enhancements | \$1.7 | ● Begin Weapons Integration | |
| ● Simulator Mods | \$8.2 | ● Update Simulator to Reflect Previous Mods to Aircraft | |
| ● AFT DC Battery Mod | \$14.4 | ● Safety Mod for Redundant Power Source | |
| ● Other Mods | \$4.5 | ● Continue R&M Mods | |

| \$M | Prior | FY92 | FY93 | FY94 To Complete | Total |
|------------|-------|-------|-------|------------------|-------|
| Proc | n/a | 161.5 | 211.2 | 213.3 | TBD |
| Qty Buy | 100 | --- | --- | --- | --- |
| Deliveries | 0 | 0 | 0 | 0 | 0 |



CHARACTERISTICS

- Multi-capable Manned Strategic Penetrator
 - Capability to Conduct Missions Across the Spectrum of Conflict
 - Can Support Nuclear War, Conventional Conflicts, and Peacetime Crises
- High Probability To Penetrate Due to Stealthy Design
- Exceptional Range Capability
 - High Mission: 6,000 nm
- Exceptional Payload Capability
 - Approximately 48,000 lbs of Conventional (CBU, TSSAM, JDAM, MK82, MK84)
 - 16 B61/B83 Capable

SCHEDULE

- Recent Major Schedule Changes Reflect President Bush's 28 Jan 92 State of the Union Address
- Air Combat Command First Delivery

Dec 93



| <u>FY94 FUNDING</u> | <u>\$Y11.3M</u> | <u>FY94 PROGRAM</u> |
|------------------------|-----------------|--|
| ● Aeronautical Vehicle | \$0.0 | |
| ● Initial Spares | \$285.1 | ● Provisioning of Authorized Aircraft |
| ● PSE/Data/Training | \$459.3 | |
| ● Retrofit | \$21.9 | ● Comsec, GPS, JP-8, MILSTAR UHF, Alt
Power Source for Time Transfer Unit |

| | | |
|------------------------------------|---------|--|
| ● Interim Contractor Support (ICS) | \$40.8 | ● ICS |
| ● Other | \$104.2 | ● Government Furnished Procurement
(7.3), Non-recurring (38.3), War Reserve
Supply Kits (6.9), Software Support
(47.9), Other Gov Cost (10.7) |

| <u>\$M</u> | <u>Prior</u> | <u>FY93</u> | <u>FY94</u> | <u>To Complete</u> | <u>Total</u> |
|------------|--------------|-------------|-------------|--------------------|--------------|
| Proc | 13,801.6 | 2660.1 | 911.3 | 2807.4 | 20,180.4 |
| Qty Buy | 11 | 4 | 0 | 0 | 15 |
| Deliveries | 0 | 0 | 4 | 11 | 15 |

F-16 Fighting Falcon



CHARACTERISTICS

- One of the Largest Air Force Procurement Programs in History
- Currently Serving in 18 Air Forces
- Multinational Coproduction
 - .. Thirteen Countries
 - .. Four Assembly Lines
 - ... Turkey ... The Netherlands
 - ... Ft Worth ... Belgium
 - ... Korea (1996)
- Workhorse of Desert Storm
 - .. 249 Aircraft Deployed
 - .. Approx 13500 Sorties Flown
 - .. 5 Combat Losses
 - .. Carried 40% of Bombs Dropped

SCHEDULE

- Program Initiation Aug 71
- Initial Operating Capability Oct 80
- First Block 50 Delivered Oct 91



F-16 Procurement

| <u>FY94 FUNDING</u> | <u>\$797.3M</u> | <u>FY 94 Program</u> |
|------------------------|-----------------|--|
| ● Weapon System | \$793.1 | ● 24 Aircraft |
| ● Advance Buy | \$70.8 | ● Long Lead Items for 24 Aircraft |
| ● Advance Buy (Credit) | -\$67.7 | ● Long Lead Items (Prepaid in Prior Years) |
| ● Initial Spares | \$1.1 | |

| <u>\$M</u> | <u>Prior</u> | <u>FY92</u> | <u>FY93</u> | <u>FY94 To Complete</u> | <u>Total</u> |
|------------|--------------|-------------|-------------|-------------------------|--------------|
| Proc | 32753.7 | 1221.7 | 710.2 | 797.3 | 37228.6 |
| Qty Buy | 2117 | 48 | 24 | 24 | 2237 |
| Deliveries | 1909 | 104 | 125 | 47 | 2237 |

JOINT SURVEILLANCE TARGET ATTACK RADAR SYSTEM (JSTARS)



CHARACTERISTICS

SCHEDULE

- A Joint AF/Army Airborne System that Finds and Tracks Moving/ Fixed Ground Targets
- Radar Data Used to Cue AF/Army Attack Assets in Near Real Time
- Common view of the Battlefield
- Pre-Hostility Information from Joint STARS Provides Advance Warning of Enemy Intent

- Contractor Flight Test Start May 89
- Desert Storm Deployment Jan 91
- Start Syst Level Perf Verif Oct 91
- Start Government DT&E Nov 91
- DAB Review for LRIP 3Q FY93

2888

Joint STARS Procurement



| <u>FY94 FUNDING</u> | <u>\$409.2M</u> | <u>FY94 PROGRAM</u> |
|------------------------|-----------------|--|
| ● Aircraft Procurement | \$280.3 | ● Full Funding for Lot II Production Aircraft/Support Equipment/Data |
| ● Advance Procurement | \$125.4 | ● Advance Procurement Funding for Lot III Production Aircraft |
| ● Initial Spares | \$3.5 | |

| <u>\$M</u> | <u>Prior</u> | <u>FY92</u> | <u>FY93</u> | <u>FY94 To Complete</u> | <u>Total</u> |
|------------|--------------|-------------|-------------|-------------------------|--------------|
| Proc | 0 | 137.8 | 607.7 | 409.2 | 3534.1 |
| Qty Buy | | | 2 | 1 | 16 |
| Deliveries | | | | | 19 |

Air Force Roles



- Aerospace Control (Control the Combat Environment)
 - Counterair
 - Counterspace
- Force Application (Apply Combat Power)
 - Strategic Attack
 - Interdiction
 - Close Air Support
- Force Enhancement (Multiply Combat Effectiveness)
 - Airlift
 - Air Refueling
 - Spacelift
- Force Support (Sustain Forces)
 - Base Operability & Defense
 - Logistics
 - Combat Support

C-17 AIRLIFT PROGRAM



CHARACTERISTICS

- Large Payload/Intercontinental Range (Outsize Cargo)
- Direct Delivery (Reduced Closure)
- High Utilization Rate
- Increased Throughput
- Small/Austere Airfields (Outsize)
- Outsize Airdrop and LAPES
- Combat Offload
- Reduced Operating Costs
- High Reliability/ Low Maintenance
- Reduced Manpower Requirements
- Enhanced Survivability

SCHEDULE

- Mission Element Need Statement Nov 80
- Development Contract Award Jul 82
- Milestone II (Full-Scale Dev) Feb 85
- Milestone IIIA (LRIP) Dec 88
- SecDef MAR Decision Apr 90
- T-1 Assembly Complete Dec 90
- T-1 First Flight Sep 91
- P-1 First Flight May 92
- Initiate Dedicated IOT&E Feb 94*

* Based on Current Estimate of Static Failure Impact.

C-17 Procurement



292

| <u>FY94 FUNDING</u> | <u>\$2378.2M</u> | <u>FY94 PROGRAM</u> |
|-----------------------|------------------|--|
| ● Total Flyaway | \$1930.5 | ● Award Definitized Lot V and VI |
| ● ICS/Common AGE | \$28.8 | Contracts for 6 Aircraft Each |
| ● Initial Spares | \$59.9 | ● Award Advance Buy Contract for Lot VII |
| ● Advanced Buy Credit | -\$250.9 | |
| ● Advanced Buy Debit | +\$245.5 | |
| ● PSE/CSE/Trng/Data | \$364.4 | |

| \$M. | Prior | FY92 | FY93 | FY94 To Complete | Total |
|--------------------|--------|--------|--------|------------------|-------|
| Proc | 3628.6 | 1812.5 | 2041.2 | 2378.2 | TBD |
| Qty Buy | 10 | 4 | 6 | 6 | TBD |
| Deliveries (1 FSD) | 3 | 5 | 6 | 6 | TBD |

Air Force Roles



-
- Aerospace Control (Control the Combat Environment)
 - Counterair
 - Counterspace
 - Force Application (Apply Combat Power)
 - Strategic Attack
 - Interdiction
 - Close Air Support
 - Force Enhancement (Multiply Combat Effectiveness)
 - Airlift
 - Air Refueling
 - Spacelift
 - Force Support (Sustain Forces)
 - Base Operability & Defense
 - Logistics
 - Combat Support

T-1A TS (TRAINING SYSTEM)



CHARACTERISTICS

- Implements the Tanker/Transport Track of Specialized Undergraduate Pilot Training (SUPT) Approved in DOD Trainer Aircraft Masterplan
- Training Tailored to Tanker/Transport Bound Students
- Produces Graduates Better Prepared for Follow-on Aircraft
- 180 Missionized Commercial Business Jets (Beech 400T) With Ground Based Training System

SCHEDULE

- Contract Award Feb 90
- First Aircraft Delivery (Reese AFB) Jan 92
- Start Student Training (Reese AFB) Jan 93
- Deliveries and Training at Randolph, Laughlin, Vance, and Columbus AFBs Follow Sequentially 92-97

T-1A TS (TRAINING SYSTEM) Procurement



FY94 FUNDING

\$159.3M

FY94 PROGRAM

● Flyaway

\$137.7

- Funds 35 Aircraft, System Engineering and Program Management, Engineering, Change Orders and Award Fee

● Support

\$21.6

- Funds Initial Spares, Flight Simulators, Tech Data, Site Activation at Reese AFB, and Airframe Structural Integrity Program

| \$M | Prior | FY92 | FY93 | FY94 | To Complete | Total |
|------------|-------|-------|-------|-------|-------------|-------|
| Proc | 318.9 | 157.7 | 165.0 | 159.3 | TBD | TBD |
| Qty Buy | 43 | 34 | 36 | 35 | TBD | TBD |
| Deliveries | - | 21 | 22 | 37 | TBD | TBD |

Conclusion



- Air Force Acquisition - Equipping the World's Most Respected Air and Space Force
- Implementing the New Approach to Acquisition
- Prepared to Meet the Challenges of the Future

F-16 PROGRAM

Mr. MURTHA. Let's talk about the F-16 because I know we had a controversy about it last year. The Senate was insistent on cutting it out and we felt that it was important to keep it going for a number of reasons.

I would like you to give us an idea of what you see for the F-16 and what you think we should do—your recommendations about what direction we should go in this committee when we mark up.

General JAQUISH. I think as we testified in the R&D hearing we are now at 24.3 TAC fighter wings, down from a planned 38 to 44 not many years ago. Unfortunately I suspect that 24 may not be the bottom number. The F-16s we are buying out most capable F-16s, Block 50, with all the improvements in it have been developed to date including a lot of precision-guided munition capability, et cetera.

At this point, we have taken delivery of 31 of those airplanes so we have other deliveries to go and we will be looking to retire our earlier models, Block 10s and Block 15s that have a shorter service life and they are the least capable airplanes.

This year we have a request for 24 airplanes and the decision from the Department was to procure 24 for this year and 24 for next year and stop the production at that point. When we were at 26 wings, we had, in fact, a little shortage in F-16s in the out-years, particularly after you retire the earlier models.

The current thought is that procurement of these 48, will partially avoid that bathtub, and we will proceed on. In addition, the purchase of 24 this year and 24 next year will assist in alleviating the part of the production bathtub that exists at Fort Worth as we phaseout Air Force buys and the on-contract FMS work that is out there. This will kind of smooth the delivery of the airplanes that we purchased in 1992 and 1993, and then buy the additional 48 airplanes in 1994 and 1995.

So we funded those additional airplanes by pulling some of the money out of the mod accounts that was there. We prioritized that to pay for the production. However, we will continue to upgrade the F-16 particularly looking forward to the Block 50, which is our most capable F-16.

SPARE PARTS

Mr. MURTHA. When I was in the field, I asked about spare parts and also asked whether we are buying the same number of spare parts as we buy for the airplanes. You are saying we are not buying the spare parts package we used to buy, and you are not buying as many spare parts as a whole.

Is this causing shortages in the field because I know you have at least what they were referring to as an excess of pilots, more pilots than we have airplanes. They seem to be getting enough flying time in. Are spare parts going to be adequate?

General JAQUISH. I would like General Nowak to answer. There is always a lag if you draw down spare parts before you see the impact. conversely, if you start buying spare parts, there is a lag before you show that.

General NOWAK. Relative to continuing the availability of spare parts, much has changed with the recent move to DBOF. Now, through the stock funds, we buy and replace spare parts as they are condemned. One of our concerns is with the 65 percent limitation that has been imposed on the number of items we can buy in our support division of the stock fund. We are worried that condemned items are not being replaced at a rate that will keep us healthy in spares in the future.

If we didn't have that limitation, the normal buy process of the DBOF would keep us up to date.

DEFENSE BUSINESS OPERATIONS FUND (DBOF)

Mr. MURTHA. We have had complaints DBOF is not reimbursing the services as quickly as they would like.

General NOWAK. The Air Force has the same concern. There was a projection made of a refund that would go from the DBOF account to the Services. We have gotten part. The Department has assured us that the rest is going to come before the year is over.

Mr. MURTHA. The F-15 squadron I visited at Aviano—what model were they?

General JAQUISH. Air-to-air.

AIRCRAFT INVENTORY

Mr. MURTHA. F-15C's, I guess. The missiles on it were AMRAAM and AIM-9s. The pilots, of course, were having no problems at all except a slow turn-around time in getting spare parts. They weren't complaining about it, but it was a little bit of a problem. They said back at home they were having to cannibalize other aircraft and I found that to be true in almost every service. What are the plans for further modernization of the F-15 force?

General JAQUISH. Not only does the dedicated air-to-air platform carry missiles, but the E model, air interdiction platform also carries air-to-air missiles. Originally, we had an inventory objective of 392 F-15s.

President Reagan's FY90 budget made the decision to take that inventory objective from 392 down to 278 airplanes and when we transferred to the Bush FY90 amended budget, the program was taken down to 200 airplanes. That equates to two operational wings; in other words, 6 squadrons, 24 each plus attrition reserve and test.

The Air Force later tried to buy additional F-15s because if you take those 200 airplanes and you go out through their life, pretty soon through normal attrition you drop below a wings of aircraft.

F-111s and F-117s constitute the remainder of our interdiction force. We were unsuccessful in our early attempt to increase the number of F-15Es. It has been a matter of funding priorities.

Everybody thinks the F-15E is a superb airplane. However, there is a window of opportunity for continued USAF F-15E's in the sense there are Foreign Military Sales—FMS—out there. Saudi Arabia is buying 72 and there is excess plant capacity. If a decision were made to procure additional F-15E's, as long as that decision was made with long lead money in fiscal year 1995, we would be in a position to protect that option.

The Air Combat Command Commander, General Loh, has indicated that he believes an additional 36 F-15E's would be required to maintain that 2-wing force structure through its life, which is 2020. So there is no firm decision or change in our position up to this point, but in general I go back to this window of opportunity and it depends upon what comes out of the bottom-up review, particularly with regard to force structure. It is a capable airplane and we would be interested in being able to maintain that 2-wing force structure.

Mr. MURTHA. Mr. McDade?

JOINT STARS (JSTARS) PROGRAM

Mr. MCDADE. Thank you, Mr. Chairman.

Welcome, General. It is a pleasure always to see you. You are a frequent visitor. We are glad to have you here.

I want to talk about JSTARS. There is \$281 million in the budget for the procurement of one additional and there is some money, about \$123 million for advanced procurement of 2 JSTARS down into fiscal year 1995 as I understand the budget request. Is that accurate?

General JAQUISH. I believe that is correct. Yes, sir.

Mr. MCDADE. What is the status of the JSTARS development program?

General JAQUISH. The test program has been going exceptionally well. We had perturbation in the test program as a result of the successful deployment to Desert Storm which we would say is a true OT&E of that airplane. It will go down in history.

As you know, within the EMD portion there are actually two models being worked. There is an E-8 which is the early EMD airplane and a model referred to as the E-8C which will be the IOT&E airplane, production representative airplanes that will go through the operational test.

We have completed all the critical test events to support a low-rate decision for JSTARS production and the DAB is scheduled in May. The preliminary results from the independent tester says JSTARS will meet all its critical requirements.

In addition, contractor testing and government DT&E testing for the A model will be complete in June and August, respectively. Then we will have a multi-service Air Force/Army IOT&E operational test using the C model that will continue on and will be complete in 1995. In addition to that on the C model, which is the preproduction airplane that would be used in the IOT&E, there will be continuous DT and contractor testing.

It has gone exceptionally well. We are in position to go into low-rate production and we feel it will meet all its critical requirements.

Mr. MCDADE. Is the contractor in an overrun condition at this time?

General JAQUISH. We understand he is in an overrun condition, although some of that has been offset by claims satisfied for \$44 million. He is slightly over \$100 million in overrun condition on the contract.

Mr. MCDADE. So the claims are all settled out?

General JAQUISH. Yes, and we settled for \$44 million from the government.

Mr. McDADE. Are we making progress payments on the contract currently?

General JAQUISH. I believe so.

Mr. McDADE. The Defense Acquisition Board—DAB—approved an LRIP for JSTARS.

General JAQUISH. That DAB will occur in May.

Mr. McDADE. When do you expect the lot 1 production contract to be awarded?

General JAQUISH. Right after DAB—coming out of the DAB, we ought to be able to go on contract with lot 1.

Mr. McDADE. How many JSTARS aircraft did the Air Force request in its original budget submission to OSD for fiscal year 1994?

General JAQUISH. We originally requested two. You had provided us advance procurement for the previous years. That was our plan last year. The current President's Budget is for one airplane.

Mr. McDADE. As you know, that is a problem for us and I am sure it is for you. What is the rationale for budgeting for one aircraft only in this year's budget?

General JAQUISH. The rationale at the time was that operational testing was still to be done and there was concern expressed if you buy too many, if you come out with changes, you have gotten out of sequence. We argued against that because we end up with a production profile of two in 1993, one in 1994, and two in 1995, and that perturbates the entire production line.

Mr. McDADE. How about the unit cost?

General JAQUISH. It is increasing the unit cost by \$20 million.

Mr. McDADE. Will there be a production break in fiscal year 1994 because of this kind of a procurement?

General JAQUISH. No, sir, but there will be significant inefficiencies within the line in terms of loss of learning, layoff of work.

Mr. McDADE. There won't be a break, but there will be a downsizing of the skilled work force?

General JAQUISH. Absolutely.

Mr. McDADE. Do you see a better way to do this rather than go to one and back up to two?

General JAQUISH. The Air Force position going into the budget was for two. We intend to procure two a year for the rest of the production. Personally, I would revisit the decision and roll it back to two aircraft.

Mr. McDADE. Furnish the dollar amount to get up to two for the record.

[The information follows:]

The dollar amount required to procure the second Joint STARS aircraft in FY94 is \$195.0M. That is broken out as follows: \$191.5M for the aircraft with associated support equipment and data, and \$3.5M for initial spares.

Mr. McDADE. There is consideration of some kind of action in Bosnia.

General JAQUISH. Coming out of Desert Storm, one of the provisions we made in the contract was to do a deployment package for contingency operations. That is in place. We paid money for that.

If the decision were made to do that, it would perturbate the continued testing of the airplane and have an impact on the program and cost the program and probably result in claims from the contractor in terms of delay and disruption.

JSTARS MULTIYEAR OPTIONS

Mr. McDADE. You didn't mention multiyear when we talked about options. Is there a multiyear option, too?

General JAQUISH. Not at this point. We would continue to look at multiyear as an option after we got beyond the EMD phase into production, stable production. Then we would look for multiyear advances.

Mr. McDADE. But at this time and at this point, you can't see that as an option?

General JAQUISH. It is too early to——

Mr. McDADE. When might that ripen as an option?

General JAQUISH. We will continue to look at that and I think we will have a pretty good understanding of that in the 1995-1996 time frame.

Mr. McDADE. Thank you.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Dicks?

GPS AUTOMATIC TARGETING SYSTEM/GPS AIDED MUNITIONS (GATS/ GAM)

Mr. DICKS. Thank you, Mr. Chairman.

Welcome to the Committee, General. You and I had a conversation about GATS/GAM and I thought we might discuss it now. As I understand it, you have made a decision to go forward with this approach and I just want you to know that I want to give you an opportunity to talk about that, but also say on the record that I will strongly support the JDAM program and try to work with the committee and the staff to make sure that it goes forward as well.

It seems to me this is an opportunity to get the kind of smart conventional weapons that we saw so successfully used in the Gulf on the B-2 several years early, giving it a much better conventional capability.

So I applaud the Air Force's willingness to go forward on this and I would yield to you to say how we are going to do it.

General JAQUISH. It comes in two pieces. The end game plan would have an INS/GPS capable 2000-pound bomb on the B-2 in 1996 which is significantly earlier than JDAM or any precision-guided weapons would be available on the B-2 in terms of multiple aircraft.

So one piece of it is the option to build a limited quantity of inventory weapons so that the B-2s would have that capability and could carry 16 2,000-pound precision-guided weapons with that.

Mr. MURTHA. You are talking about 16, 2,000-pound bombs which then gives you a capability much superior to the F-117. The F-117 will carry two 2,000-pound bombs——

Mr. DICKS. F-18 would carry two; and the F-15 would carry two?

General JAQUISH. I think the F-15E can carry five. The guided weapons are different in the sense that the weapon on the F-117 is

a laser-designated weapon so you would need clean air mass to get the laser out there so the weapon can see and guide into it. It has excellent accuracy, three meters or less.

This GATS/GAM is all-weather. It relies on an inertial navigation system inside the weapon plus it is coupled to the GPS satellites so it can go in 24 hours a day through weather and hit the target. We don't anticipate that that weapon will have two or three meter accuracy.

Mr. MURTHA. That is an important point because we are struggling with what to do with the Navy in this area because the A-6 is so old and it is the only all-weather bomber they have.

You are talking about a much more accurate all-weather bomber. I have been pushing this idea for years and keep getting rejected on the grounds that this is not a use for the B-2. It sounds like we are getting close to being able to use this if you can get it close enough to the battlefield to refuel and to rearm.

JOINT DIRECT ATTACK MUNITION (JDAM)

General JAQUISH. Yes, sir, in part due to the leadership of this Committee and other support, we are fully pressing on conventionalizing both the B-2 and the B-1.

The Navy is a part of a larger program known as JDAM, the Joint Direct Attack Munition, which is an INS/GPS weapon that would end up in the 3 to 19 meter accuracies, all weather.

The Navy is on board with that. The problem is this is a new start program and will not be available in any quantity until fiscal year 1997 and not on the bombers until fiscal year 1999.

So the proposal we received from the B-2 contractor was for a reasonable amount of money to develop some smaller quantities the GATS/GAM weapons. This would not be as a part of the broader JDAM program that would apply across the Navy and Air Force on all platforms. The process would also modify the radar on the B-2 to further refine those accuracies.

Right now, GPS offers you about 15 meter accuracy. If you can improve the quality of the GPS accuracy, et cetera, through some grid technique or using an on-board radar to locate the target you can get into some very good accuracies.

We recently did an operational demonstration with some hand-built weapons at Eglin demonstrating the concept of an INS/GPS weapon. Two of those two-thousand-pound weapons hit at approximately two meters, one at approximately four, one at approximately six, one at approximately eight meters, and one at approximately thirty-three meters.

This proposal that Congressman Dicks is referring to is to do two pieces, do the relative synthetic aperture radar target in on the B-2 radar and then the option to procedure a limited number of GATS/GAM weapons for an early capability on the B-2.

The work done on the radar would be work that would flow down to any other airplane that had a SAR radar, so they are complementary. Part of the problem was there was a lot of concern that if we did this for the B-2, that when it came time to do the JDAM weapon, people would argue you have already done that and you don't need JDAM.

We have separated the two completely on a business perspective, Northrop has agreed that they will not participate in the JDAM competition so we have built a fire break between the two on the business side and we are looking for support and understanding that when you buy GATS/GAM, you are buying an early capability on the B-2—.

FUNDING GATS/GAM

Mr. MURTHA. Is there any more money we can consider adding to this project to expedite the procedure—because I can see this as being a plus for us—we are not going to solve the problem with the Navy for a number of years. I look at the B-2 as being an important capability in blocking out the early warning radars in addition to the F-117s because I don't see us building the other aircraft.

General JAQUISH. Total cost to the government of doing this option outside of the JDAM integration funds already available in the B-2 to do this work is \$67 million spread across several years. We need money in 1994 and 1995 at \$50 million a year above what we have and there would be payback of some money in 1996 and 1997. If you were going to support that, we would need about \$50 million for this effort in fiscal year 1994.

Mr. MURTHA. And that would be the maximum you could use?

General JAQUISH. Yes, sir. I think that is a prudent way to do it because particularly working on the SAR radar and the software association that we will have to be phased in that way.

Mr. DICKS. I think this gives us a good idea of going forward. As you mention, Northrop says it will take itself out of the JDAM competition and will focus on this.

As I understand it, if we go forward with this, we are talking about basically a 20-foot CEP; is that correct?

General JAQUISH. We anticipate 15 to 30 feet, but in the operational demonstration, we got two two-meter bombs out of it and four of the five weapons dropped were inside ten meters.

B-2 CONVENTIONAL CAPABILITY

Mr. DICKS. What I see here is an opportunity to give us an enormous new conventional capability that we really haven't had before, and my view of this is the B-2 is not going to be used as a new bomb dropper, that it is going to be used in conventional warfare and that when you have a prospect of 16 of these very smart weapons on the B-2, I think that gives us a great new capability.

Rand conducted a study using another weapon called sensor fused weapon that in simulations took out a division moving from Iraq into Kuwait with three B-2s, destroying more than 40 percent of the mechanized vehicles. People at Rand said they had never had any weapon system that could stop a division in its tracks, and this did it.

We have never had this kind of capability. The B-2 can operate autonomously and from the United States. It gives the President enormous new usable capability. So that is why I felt strongly we should fund this program knowing the chairman's interest in improving B-2 capability I thought it was a good idea and we appreci-

ate that the Air Force has reconsidered it and is now willing to go forward.

General JAQUISH. Initially, by mid 96, you can strike a target with multiple weapons. By mid 97, you could hit multiple targets, but if you were into something like a rail yard or an airfield where you wanted to target individual bunkers, you can target each weapon separately on an aim point.

The B-2 could get over the target, open the bomb doors, release the weapons, close the doors and return home. In addition, these weapons with the B-2 option are a little more expensive because we are talking about a limited quantity, but when we get into production and get the JDAM program going, our target cost is below 440,000 a copy in FY 91 dollars. When you can get that kind of capability for that kind of money that is a significant force multiplier.

Mr. MURTHA. Because of our time constraints, the time of the gentleman has expired.

Mr. Young.

COMPLIANCE WITH START LIMITATIONS

Mr. YOUNG. Thank you, Mr. Chairman.

General, in about ten years, the only ICBM that we are going to have available to us is Minuteman III. You are in the process or planning to download the Minuteman III from a multiple to a single warhead to comply with START.

The former Soviet Union supposedly is doing the same thing, but we have had witnesses before the Committee telling us that former Soviets are having some difficulty with their program. I make these comments to lead into the question that has to do with maintaining our nuclear inventory until such time as the Soviets comply with downloading and START limitations.

Department of Energy—DOE—in the previous administration, had a proposal to have a quick consolidation of a number of plants including one that built neutron generators.

The plan would take this neutron generator plant off line and take us away from the ability to build those generators for at least seven years.

Did DOE discuss this matter with you at all as it related to our ability to maintain a nuclear deterrent until such time as the former Soviet Union complied?

General JAQUISH. Not that I am aware of.

General CARUANA. One of the jobs I do is to interact with the people in OSD and that is one of the issues that is discussed on the Nuclear Weapon Council Standing Committee, so there is interaction among those in OSD, Department of Energy and DNA as well. Those issues are discussed to look at what our nation needs to look at, the short- and long-term capability as far as generating materials for weapons.

So that is considered at a senior level above that after that committee looks into it.

Mr. YOUNG. We are aware that there is an overall plan to review our entire nuclear weapons posture, but the thing that concerned a number of Members of the House and Senate, was a program

initiated at DOE to just pull out one small part of that overall consolidation plan and try to move ahead with it without any reference to how it affected the rest of the plan.

The Appropriations Committee last year slowed that down until it was looked at. Have they specifically talked to you about pulling a piece of that reorganization out and doing it without reference to the rest of the plans?

General CARUANA. I can't recall a specific reference to the item that you mentioned. We could look back and see in previous meetings whether that has been discussed.

To my knowledge, there hasn't been specifically addressed pulling out a specific unit. Everything is covered because of the representation that is there, but I don't remember any specific reference to the issue that you are talking about.

Mr. YOUNG. Please check and let us know because if the war preventers aren't involved in this decision, then we become even more concerned than we were just from the dollar aspect of their proposal.

[The information follows:]

The Department of Energy has briefed both the Joint DoD/DOE Nuclear Weapons Council and Nuclear Weapons Council Standing Committee on DOE's plan to reorganize and consolidate nuclear weapons facilities. Included in these briefings, although not a point of major emphasis, was DOE's plan to close the facility at Pinellas, Florida which produces neutron generators. Additionally, DOE stated that they would continue to be able to fulfill DoD neutron generator requirements in spite of the Pinellas shut-down.

AMRAAM PROGRAM

Mr. YOUNG. Let me go to the question of AMRAAM. That has been a big issue for a long time and this Committee supported the Air Force all the way with AMRAAM. Now the AMRAAM is working and I understand it has been used in a hostile situation. Is that correct?

General JAQUISH. Two of the three recent shootdowns were with AMRAAM. At a summary level, I will tell you this committee's indulgence of the problems that we had with AMRAAM has really paid off because the missile is continuing to perform beyond our expectations in terms of its ability to kill targets. Regarding reliability, we had set a goal for reliability of 450 hours. We thought we would be stressed for that.

A couple of years ago, that was a real problem that we had. We are now seeing operational reliability rates in excess of 1,000 hours mean time between failure. The contractors are incentivizing competition by offering different incentives with regard to reliability.

In addition, we are achieving beyond our expectations great benefit from the competition. We recently awarded Lot 7. In the previous lot, Raytheon had put significant incentives on the table in their bid, plus lower cost.

This time Hughes put more incentive on the table and our estimate of benefits this time from competition is 26 percent. The missile-only cost from Hughes was below \$360,000 a copy.

When you think of the complexity of this missile, this is a real success story. I would comment that as a result of our recent competitions, we think there are a lot more competition benefits to be

had. We are getting good FMS orders and we think it makes sense to keep these two lines going.

There has been a lot of discussion about a down select and we could do that, but as long as we are achieving the kind of competition we are, we would want to stick with it.

Mr. YOUNG. Perseverance paid off?

General JAQUISH. Yes, sir. On the C-17, I would recommend that you bear that in mind.

Mr. MURTHA. The time of the gentleman has expired.

Mr. Sabo.

Mr. SABO. I will pass.

Mr. MURTHA. Mr. Skeen.

C-17 AIRCRAFT

Mr. SKEEN. Thank you, Mr. Chairman.

General, we talked about the C-17 several weeks ago when you were before the Committee. There are further questions that remain in my mind. Your budget request was \$2.3 billion to procure 6 C-17 aircraft as well as \$245.5 million in advanced procurement for 8 aircraft in fiscal year 1995. Would you update the Committee on the current status of the aircraft deliveries and if anything has changed since last you testified?

General JAQUISH. Flight tests—we have all 6 airplanes in flight test. That continues to go very well. That is proceeding.

With regard to production, currently we have continued to see the kind of things that we spoke to the committee about before. We have seen quality improvements on the line. The current rate of production shows the ability to produce 6 or 7 airplanes a year.

Mr. MURTHA. Would you provide for the record the procurement cost of 10 aircraft? We are looking at zero versus 10. Would that reduce the unit cost of the plane substantially?

[The information follows:]

There have been many changes since last year's testimony. To date the Air Force has accepted delivery of 6 aircraft into the flight test program and expects to receive the first operational aircraft in June.

The production process is showing many positive trends. McDonnell Douglas Aerospace has achieved a steady flow of aircraft through the production line. Quality and efficiency are improving. Rework and repair hours have been reduced by 50 percent from T-1 to P-10, and production performance efficiency is improving.

There have been dramatic reductions in engineering backlogs, parts shortages, out of position work and span times. Engineering backlogs are down from a peak of 4800 items in Sep 91 to 1900 items in Sep 92 to 840 items in Apr 93. Parts shortages decreased by 50 percent from Dec 92 through Mar 93 prior to the contract reschedule due to achieving better on time delivery of parts to the assembly line. The schedule reset smoothed production line work and, as a by-product, decreased further the parts shortages. Since the reschedule, an additional 25 percent reduction has been achieved. Out of position work has dropped from 68 percent at major join on T-1 to 13 percent on P-4 to 5 percent on P-10. Span time, or the time from assembly start to delivery, has decreased from 37 months on T-1 to 30 months on P-3 to 25 months on P-5.

Some concerns remain about labor disruptions and delivery schedule compliance. Many C-17 workers have been displaced by commercial workers due to layoffs. Management efforts to blunt the effects of these disruptions include a transition plan and training program. These disruptions have slowed assembly labor performance improvements for the past 3 months. Delivery progress is being closely monitored so effective adjustments can be made timely and efficiently to keep completion on schedule.

For FY94, we would be unable to procure 10 aircraft because we have only 8 aircraft on long lead contract; however, buying 8 aircraft versus 6 in FY94 would increase the FY94 request by approximately \$460 million but reduce overall program cost. Capping production at 10 aircraft per year would not reduce cost over the FY94 President's Budget profile. The total program cost would increase by approximately 10 percent, and the unit flyaway cost would increase by approximately 14 percent due to the extension of the program and lower efficiencies seen at the lower rate.

General JAQUISH. Absolutely it would.

First—on the line we estimate to be 50 percent better than it was last year. When we were here before, we discussed engineering backlog. There had been a backlog of engineering tasks, and that has been reduced dramatically as well as the out-position work.

We will deliver the first operational airplane to Charleston on 14 June, and we anticipate the second operational airplane to be delivered in August of this year. So, from that perspective, we remain in good shape.

We have a DAB scheduled Friday for the new USD(A) to review the program—

Mr. SKEEN. What is a DAB?

General JAQUISH. A Defense Acquisition Board chaired by the Under Secretary of Defense for Acquisition. That will review the kinds of things that we talked about in the previous hearing and will focus on McDonnell Douglas's capability to execute the program and what things, if any, the government could do to improve the confidence of its execution.

Mr. SKEEN. It is the Committee's understanding that, as of February, 1993, the Air Force has obligated approximately \$1 billion to cover the long lead and termination liability for production lots 4 through 6. That is a total of 18 aircraft we are talking about. Is this an accurate figure?

General JAQUISH. Yes, sir.

Mr. SKEEN. It is also the committee's understanding that this money has been obligated against long lead contracts as opposed to definitized production contracts. Do the long lead contracts contain legally enforceable delivery schedules?

General JAQUISH. Yes, sir. When we were here on the C-17, Brigadier General Drews spoke about instituting a new Air Force policy because of the situation we found ourselves in on the C-17. As a result, we have published a new policy, and it is in force, consisting of two things. One, there is a not to exceed as part of each lot, and there is a firm, enforceable schedule as a part of those lots. So we have put a lot of teeth into that. On 17 April we have finished our negotiations with McDonnell Douglas for lot 4, and we hope to get a contract award in June of this year on lot 4.

[CLERK'S NOTE.—Subsequent to the hearing, the following information was submitted:]

We are in the process of implementing enforceable delivery schedules for each C-17 lot buy of aircraft. When we were here in March on the C-17, Brigadier General Drewes spoke about instituting a new Air Force policy because of the situation we found ourselves in on the C-17. As a result, we have published a new policy. It is in force and includes requirements for a not-to-exceed price for the total production lot and a firm, enforceable delivery schedule. So we have put a lot of teeth into our long lead policy.

Implementation of this new policy is progressing. For example, the C-17 Lot V contract has been modified to incorporate an enforceable delivery schedule. Negotia-

tions to incorporate contract provisions making the Lot VI delivery schedule legally enforceable are also progressing and will be completed before we obligate any procurement funds for Lot VI production.

On 17 April we finished our negotiations with McDonnell Douglas for Lot VI, and we hope to get a contract award in June of this year on Lot VI.

C-17 FLIGHT TEST PROGRAM

Mr. SKEEN. Tell me about the flight test program and how successful they have been. Any glitches?

General JAQUISH. No, sir. Flight test is continuing to go_____.

Mr. SKEEN. You said you finished the flight test schedules?

General JAQUISH. No, sir. We will be in flight test until—the latest we will finish will be January of 1995. We believe we will actually be finished in the November to December time frame.

Mr. SKEEN. You are right in the middle of the flight testing program?

General JAQUISH. Yes, sir, but we have cleared the entire operational envelop of the airplane.

As mentioned in the previous hearing, we have set 14 altitude records. We have carried an M1A1 tank on the airplane. At this time, there are no outstanding significant problems with the aircraft.

Mr. SKEEN. The wing redesign was successful?

General JAQUISH. Yes, sir. We anticipate we will go back into static wing testing this July. We will repair the test article and fix-ture and go back into static testing.

Mr. SKEEN. So there is good Air Force support for the program and for the aircraft?

General JAQUISH. Absolutely. There is a critical need for the C-17.

Mr. MURTHA. In recent flight tests, the aircraft stalled and dropped from 10,000 to 2,000 feet in altitude. What happened to the pilot?

General JAQUISH. The chief test pilot for McDonnell Douglas was doing a test point that was to be a simulated landing approach with two independent failures, one that the wing slats would not extend at slower speeds and also a hydraulic failure. When he was setting up to establish the parameters of this to explore the handling qualities of the airplane under this circumstance and he was at 8,000 feet above the ground, he lost control of his air speed, and he stalled the airplane exactly where we predicted it would have stalled.

Mr. MURTHA. Is that pilot error?

General JAQUISH. I would say so, and I think he would admit that he screwed this thing up.

Mr. DICKS. He wasn't an Air Force pilot.

General JAQUISH. He had an Air Force co-pilot. The airplane, even in a stalled condition, doesn't do anything violent. He did not recognize he had stalled the airplane. So for some thousands of feet he thought he had a flight control problem and, as test pilots might do, he was trying this and trying that and so forth. And he finally added some power, extended the slats and recovered the airplane with significant ground clearance. He cleared the ground by 1,700 feet.

It was only after the mission that he recognized, looking at the data, that the airplane had, in fact, stalled.

The bad news is he screwed it up. The good news is in stall conditions the airplane is very easy to control and get out of a stall once you recognize you are in it.

Mr. SKEEN. That is certainly a plus.

General JAQUISH. Yes, sir.

AIR MOBILITY MASTER PLAN

Mr. SKEEN. It is the committee's understanding that the Air Force is updating its Air Mobility Master plan and that final recommendations concerning the airlift force structure will be made to General McPeak in August. Is this accurate? What options are being considered in this review and how does it relate to the bottom-up review being conducted by Secretary Aspin?

General JAQUISH. The Air Mobility Master Plan is a part of the Air Force Chief's initiative to have 1994 as the year of equipping. He has asked all using commands to develop a master plan to look down the road to determine the kinds of things they ought to consider. That is going on now within Air Mobility Command. It has no relationship to the bottoms-up review. It is simply in response to our Chief's initiative.

The C-17 itself is not a part of the bottom up review. However, the Joint Chiefs are looking at force structures. So the C-17 would certainly be a part of that review.

Mr. SKEEN. Thank you for your responses.

Mr. DICKS. One quick question on the C-17. There was a story here the other day about general contractual difficulties with McDonnell Douglas. Is there any problem there that is threatening to this program, that somehow could derail C-17 with McDonnell Douglas?

General JAQUISH. Sir, at this point in time—and this is consistent with what we told you last time—McDonnell Douglas has the management team in place to execute this program, and there are no difficulties going on between the government and McDonnell Douglas.

There have been in the papers some reports of a claim that McDonnell Douglas is going to file, and that has been in the papers for some time. We have yet to see any of the details of that claim. You are not going to find any problems at this point between the Air Force and McDonnell Douglas.

Mr. DICKS. I have a couple of questions for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Dicks and the answers thereto follow:]

B-1 CAPABILITIES IMPROVEMENTS

Question. General, you indicated in your testimony that the procurement request for the B-1 includes the first conventional capabilities improvements. Can you explain what these first improvements will provide?

Answer. The first improvement will provide the B-1 with the MIL-STD-1760 weapon electrical interface necessary for the integration of the JDAM 1. Other improvements, planned for procure-

ment in the FYDP, include Global Positioning System integration, avionics computer upgrade, and anti-jam radio. Together, these improvements will provide the B-1 with the capability to deliver precision-guided conventional munitions such as JDAM 3, JSOW, and TSSAM, and allow the aircraft to operate efficiently as an element of a force package.

GATS/GAM

Question. General Jaquish, when you appeared before the committee for the Air Force R&D Hearing, you indicated that the Air Force was considering the procurement of the GATS/GAM munitions as an interim munitions capability. You indicated that you would be briefing the Chief of Staff, General McPeak, and then would get back to us on this capability. Does the Air Force plan to procure this capability? How early could this capability be available? Will it only go on the B-2? What funding will be required?

Answer. The Air Force has completed a preliminary evaluation of the GATS/GAM proposal. General McPeak approved proceeding with GATS/GAM using a two-phased program. The first phase will test the GATS concept with a limited amount of GAM test assets to prove the concept. If successful, the Air Force will proceed with the second phase. The second phase will procedure 128 GAM weapons for a B-2 near precision capability. Contract award will be in FY 95 to support weapon delivery in mid-FY 96. The Air Force will request Congressional authority to begin in FY 93.

If GATS is started by July 1993, a single-target capability will be available in mid-FY 96 will full multiple target capability available in mid-FY 97. Currently, the B-2 is the only weapons platform scheduled to have this capability, although the benefits of GATS could potentially provide greater accuracy to any aircraft with a Synthetic Aperture Radar (SAR). The funding required is depicted in Figure 1. The top line is currently in the B-2 program for Joint Direct Attack Munition (JDAM) 1 integration. The second line represents what is required for the GATS/GAM program in FY 93-95 (-), and what is not needed in FY 96-97 (+), for a total of \$67 million required. This funding includes full JDAM 1 integration, full GATS/GAM capability on all 20 operational aircraft, and 128 GAM weapons.

| Budgeted (TY\$M) | Fiscal year— | | | | | Total |
|------------------------------|--------------|------|------|-----------|-----------|-----------|
| | 1993 | 1994 | 1995 | 1996 | 1997 | |
| B-2 JDAM 1 funding..... | 22 | 26 | 32 | [Deleted] | [Deleted] | [Deleted] |
| Delta—GATS/GAM program | -9 | -48 | -45 | [Deleted] | [Deleted] | [Deleted] |

Note.—Includes full JDAM 1 integration

AIR FORCE PROCUREMENT OF WIDE BODY AIRCRAFT

Question. In other appearances this year, we have also discussed the concept of the Air Force procuring wide bodied aircraft, 767's and 747's to help remedy the current airlift deficiencies. What is the status of this proposal?

Answer. The Air Force is still reviewing the concept of procuring a wide-body commercial derivative aircraft to add to its organic fleet as a complement to the full buy of 120 C-17s. Preliminary analysis suggests the idea of purchasing wide-body civil aircraft to complement the C-17 in the organic fleet may have merit.

Commercial derivative options offer modern technology in a low acquisition risk, lost cost, long range, highly reliable aircraft. These aircraft are less manpower intensive and would be extremely efficient bulk cargo carriers. Still, commercial derivative aircraft could not handle all the requirements required of the core military airlifter. Specifically, these aircraft offer no airdrop, drive on/off, or austere airfield capability. Additionally, commercial derivatives offer no outsize and only limited oversize cargo capability. What the commercial derivative aircraft may offer, is a cost effective complement to the C-17.

Again, it must be emphasized that commercial derivations can only complement, not replace the C-17. Air Mobility Command (AMC) is tasked to fulfill the validated airlift requirements for the warfighting CINCs. These requirements include worldwide airland delivery of outsize cargo and troops into austere airfields, as well as airdrop or extraction delivery of heavy equipment and troops into drop zones. Additionally, AMC must have a weapon system capable of surviving in a wartime threat environment. Finally, AMC must have a core airlift aircraft capable of performing these missions well into the 21st century. The C-17 is a flexible multirole airlifter and it is the only aircraft that can fulfill all these requirements. There is no substitute for the C-17—it is our core airlifter for the future. Still, the preliminary analysis suggests the proposal to buy wide-body civil aircraft to complement the C-17 in the organic fleet may have merit and will continue to be evaluated.

Finally, it must be emphasized that if the procurement of a commercial derivative aircraft proves to be a viable concept, the Air Force is not limiting its options to Boeing 767/747 aircraft. The Air Force will invite all US aircraft manufacturers to compete for the contract.

MC DONNELL DOUGLAS HEALTH CARE BENEFITS

Question. Do you think that the termination of these benefits help McDonnell Douglas (MDC) report these first quarter profits?

Answer. The decision to eliminate company paid retiree health benefits for its non-union employees was taken in October 1992. The financial impact was recognized in the fourth quarter of 1992. The resulting curtailment gain of \$1.090 billion is shown on the Consolidated Statement of Operations (Income Statement) as a reduction to Total Cost and Expenses. The effect was to reduce the anticipated \$1.5 billion loss on the implementation of the FAS 106 accounting change.

The change excludes retiree health care benefits for non-union retirees. If MDC had not eliminated retiree health care benefits for non-union retirees, the impact to 1993 would have been increased costs on their financial statements.

Question. Is McDonnell Douglas now negotiating with the Air Force and DoD to now reduce the prices on some contracts to

return the funds that covered the cost of future retiree health benefits, as reported in the LA Times?

Answer. Contract prices for FY94 and beyond which contain (i) the cost of future non-union retiree health benefits and (ii) a contract reopener clause will be adjusted downward. On 12 March 1992 a contract reopen clause, with the downward only adjustment, was approved for use in all McDonnell Douglas (MDC) contracts. This clause identifies the amount of retiree health care cost priced into a contract. It also provides a mechanism for the removal of unfunded costs as appropriate. All MDC contracts covered by the clause (competitive awards and very small contracts are excluded) will have their price adjusted downward to reflect any amount of cost which is not funded.

Question. As you know, I am a big supporter of the C-17. But despite the fact McDonnell Douglas recently profits, they have also made the headlines because they have terminated the health care benefits of the non-union employees. Do the Air Force contracts with McDonnell Douglas provide for health care benefits for both employees and retirees?

Answer. The price of an Air Force contract includes overhead rates and fringe benefit factors which include estimated amounts for employee and retiree health care benefits. Health care benefits are not called out or provided for directly in contracts.

Question. Is there a dollar for dollar reimbursement for employee health care costs under Air Force contracts?

Answer. Employee health care costs are normally included in contractor overheads which are allocated to government and commercial contracts. On a firm fixed price contract, reimbursed costs do not vary based on incurred costs for that contract.

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks.]

Mr. MURTHA. We will have the management, including Mr. McDonnell, before the Committee. He says their team is in good shape financially.

Mr. Darden.

TACTICAL AIRLIFT MODERNIZATION

Mr. DARDEN. On page 9 of your statement you refer to the fact that the Air Force is asking for no funds for any tactical airlift modernization, which represents somewhat of a departure in your previous years' submissions in which it was understood the Air Force would continue to modernize its tactical airlift. I would assume that, by the fact there is a change in this request, that you have made it part of your acquisition policy to, in effect, transfer the tactical airlift function to the Guard and Reserve. Is that your intention here?

If it is not, you seem to be well on your way to doing it.

General JAQUISH. That is not the intention of the Air Force. We had intended to buy 165 C-130Hs, and we were buying them at a rate of 8 airplanes a year, consistent with the money that was out there. We are buying 8 airplanes in 1993.

The Air Force continued to support that procurement in our budget submission, but the President's Budget does terminate that in fiscal year 1994.

Mr. DARDEN. We are going to attempt to revisit that issue in the Committee. Nothing may come out of it, but I am concerned that the active Air Force remain in the tactical airlift arena, and I think if it is going to remain there it needs to continue to upgrade and modernize its assets. I guess we will be discussing this quite a bit in the next few months.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Hefner.

Mr. HEFNER. Mr. Chairman, I have some questions for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Hefner and the answers thereto follow:]

AIR FORCE TIRE PROCUREMENT STRATEGY

Question. Last year the Conferees directed the Air Force to develop a long-term strategy for procuring aircraft tires while encouraging competition and protecting the industrial base. We asked for that report by April 1. I understand you now say you cannot deliver this until August 25. Why is this taking so long?

Answer. The Air Force has been pursuing this matter with the Air Force Materiel command (AFMC). Ogden Air Logistics Center (OO-ALC), the item manager for aircraft tires, began discussing strategy with industry representatives and provided their initial response to the Air Staff on March 23, 1993. While their response described the award criteria for tires satisfactorily, it did not accurately describe the long-term strategy requested by the Appropriations Committee. For this reason, we tasked AFMC to reaccomplish the report. An interim response was sent to your Committee explaining that a final report could not be provided until August 25, 1993. We share your concern about the dwindling number of tire suppliers and assure you that we will be working with AFMC and OO-ALC to ensure you receive the quality report you desire.

GROUND POWERED GENERATOR (GPG)

Question. Over the last few years, the Air Force has been developing several new pieces of ground equipment. I would like to ask about two of them. First is the Ground powered Generator or GPG. I seem to recall you ran into significant problems with this item. Have you resolved those problems? What is the status of the program? Would you provide for the record your procurement plans for this equipment?

Answer. The Ground Powered Generator System (GPSG) is comprised of a generator cart and an air conditioner cart. The system provides electrical power and conditioned/compressed air to tactical fighter aircraft. FY88, FY90 and FY91 funding procured 595 systems; deliveries were to begin in April 1990, but problems with quality control and the drawing package slipped deliveries to April 1992. The Defense Contract Management Command (DCMC) issued a "Method D" Corrective Action Request on May 3, 1991 because of quality problems. Cracks were found in the power shrouds of four of the first eight units. In addition, first article test reports indicated parts from subcontractors were found to be out of tolerance. A DCMC quality audit performed in June 1991 revealed the contrac-

tor had not made enough progress on their quality action plan to lift the "Method D". DCMC finally lifted "Method D" in April 1992. At the Physical Configuration Audit (PCA), held in May 1991, 215 drawings were audited and 195 had discrepancies. The PCA was finally completed in April 1992. To date the contractor has delivered 28 GPGSs. Users are experiencing some component failures and technical data deficiencies, but all failures are being worked by the contractor through the warranty process. Because of both reductions in force structure and in the Basis of Issue of equipment to aircraft, no additional GPGS procurements are planned.

60K LOADER

Question. Second is the 60K loader. I see where you are requesting funds for this equipment. Are there any problems with this program? Would you provide for the record your procurement plans for this equipment.

Answer. The 60K loader development program is on track for a production contract award during the second quarter of FY 1994. We awarded a competitive R&D contract to two contractors in June 1990. Both contractors are on contract to build two prototype loaders which will be used in a "drive-off". The contractors are currently conducting their own internal test, analysis and fix which will prepare them for the Air Force conducted development test and evaluation/initial operational test and evaluation scheduled for completion by January 1994. Our current acquisition plan is to award a basic contract with fixed price options to the winning contractor which will allow us to satisfy the total Air Force requirement of 360 loaders.

INDUSTRIAL BASE PROBLEM

Question. General, last year the committee expressed it's concern about the overall industrial base problem. I know the department is looking at this issue, but I wonder if your review is going beyond the major contractors? Are you looking at suppliers as well?

Answer. We are looking at the lower tiers as we conduct industrial base assessments on our acquisition programs, and our various sector studies, such as electronics, forgings and organic composites.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner.]

KC-135 REENGINEING

Mr. DICKS. On the KC-135 reengining, where are we and how are we doing?

General NOWAK. We are currently trying to respond to the guidance that came out of the 1993 program.

Mr. DICKS. How are you doing on that?

General NOWAK. We are redoing the strategy to be in line with the guidance that we got from the committee. We are processing J&A relative to sole source procurement. We anticipate a signature in a few days and we will be ready to press on.

Mr. DICKS. Are further purchases of KC-135 reengining kits programmed in the future-year defense plan? If not, why not?

General NOWAK. Sir, I would like to take that for the record and get a response back to you. I am not sure where we are beyond 1994.

[The information follows:]

Yes. Reengining our 21 RC-135s is a high priority because it offers outstanding life cycle cost savings. (\$1.5B over program life) and significant operational benefit. A recent GAO report supports this recommendation. Air Force leadership strongly supports this effort. The Air Force would have included the additional 21Rs in the FY 94 budget, but at the time we submitted our budget to OSD we thought that we had FY 93 funding available to reengine 10 RCs which would have carried us through FY 94. Given the direction in the FY 93 Authorization Act we are only able to buy 2 Rs in FY 93. The only opportunity the Air Force had to fix the disconnect was in the President bush to President Clinton budget submission. The Air Force simply could not afford to add another \$110.8M at the same time it was cutting \$2.8B from the FY 94 budget.

Mr. DICKS. In correspondence to the Congressional Defense Committees the Air Force has indicated that the reengining program for the RC-135 has been initiated. How many RC-135 reengining kits will be acquired with fiscal year 1993 funding?

General NOWAK. Just two for the RCs in the 1993 funding package. The total 93 package is 10Es to Rs, 4As to Rs and 2 for the RCs.

Mr. DICKS. The KC-135E models that are still left to be reengined do not meet current noise restrictions—FAA—and will be even more noncompliant when Stage 3 noise requirements go into effect in a few years. This is a difficult problem for the Guard because of their co-location at commercial airports. The KC-135R meets all current and proposed noise requirements. How does the Air Force propose to comply with the noise regulations?

General NOWAK. Sir, as you know, the Air Force in the past has been exempt from noise regulations. As we look downstream and consider the changing force structure and the fact that we will have about a 50/50 split in the reserve force between Es and Rs, our thought is perhaps there would still be flexibility where we could relocate aircraft that meet the noise standards to commercial airports and keep the non-compliant aircraft at military only installations.

Mr. DICKS. Thank you.

Mr. MURTHA. Thank you, gentlemen. Please answer the Committee questions for the record. The Committee will adjourn until 1:30 p.m.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

AMRAAM MISSILE

Question. The Russians have been working on their own version of AMRAAM. Can you tell us how their missile compares to ours?

Answer. ———.

Question. Do you see any evidence that they will be selling it to others?

Answer. ———.

Question. To which allies are we making our AMRAAM available?

Answer. ———.

Currently the United Kingdom (UK), Turkey, the ROK, Norway, and Finland are purchasing inventory weapons. Initial deliveries will begin in 1995. Spain, Germany, Switzerland, and Greece are beginning the FMS process to purchase inventory weapons.

AMRAAM is undergoing integration onto existing and future foreign aircraft. Integration with the German F-4F is complete, while initial firings from the UK Sea Harrier have begun. The AMRAAM program office is supporting the NATO European Fighter Aircraft Development, Production and Logistic Management Agency in incorporating AMRAAM onto this new European Aircraft.

DSP/FEWS SATELLITES

Question. Your prepared statement makes the point that you are able to save \$237 million by procuring the next three DSP satellites (numbers 23-25) on a multiyear contract which we provided you the authority to do. You mentioned that you have structured those contracts to ensure minimum liabilities in the event that you decide to delete a satellite if it is not required. What would be the termination cost if you decided to delete one satellite?

Answer. In response to Fiscal Year 1993 Congressional language, we are preparing a report to Congress on termination liabilities associated with the DSP multiyear procurement. This report will be provided before contract award, scheduled for early June 1993.

Question. Is the FEWS program progressing at a rate which impacts the decision on three more DSP satellites?

Answer. No. The FEWS program is progressing on schedule. FEWS is making excellent progress in the Demonstration/Validation phase leading to a special DAB program review this summer. The need for three DSP satellites is based on the assumption that FEWS progresses exactly as it is at this phase.

Question. When is FEWS currently scheduled to be operational?

Answer. _____.

Question. Will there be any lack of coverage between DSP and FEWS?

Answer. No. The best analytical tools available indicate that the procurement of DSP satellites 23-25 will provide minimal coverage during the transition from DSP to FEWS at acceptable (albeit significant) risk. We will continue to monitor the progress of FEWS development and DSP on-orbit satellite status to ensure there is no lack of coverage between DSP and FEWS. _____.

JSTARS AIRCRAFT

Question. The two JSTARS aircraft that were used in Desert Storm were prototype aircraft and people are still talking about the great capability it brought to the battlefield. You are now going to procure one additional aircraft in FY94. Some are suggesting that you might want to procure two aircraft in FY94. Could you save any money by doing so?

Answer. In the aggregate, there would be no savings in FY94 by adding a second aircraft. Cost savings would result in later years due to acceleration of the contractor learning curve by producing two aircraft in FY94. The real benefit of such an addition would

come from the increased operational capability of having another aircraft in the inventory prior to the FY97 Initial Operational Capability (IOC) date. That would allow us to better support the war-fighting commanders and more effectively train the flight and mission crews.

[CLERK'S NOTE.—End of questions submitted by Mr. Young. Questions submitted for the record and the answers thereto follow:]

PROCUREMENT STRATEGIES FOR THE FUTURE

Question. General Jaquish, as the overall Air Force procurement appropriation is significantly reduced, it becomes more important than ever for defense manufacturers to be in a position to efficiently produce all hardware items required by the Air Force at drastically lower rates than in the past. Please share your views with the Committee on how the Air Force, working with industry, will best be able to accomplish this.

Answer. We are working with industry in a variety of ways to promote efficiency at lower production rates. The following discussion on lean production reflects how we are working to accomplish this.

Question. One of the more current buzzwords in the defense manufacturing arena is the concept of "lean production". Lean production is characterized by flexible tooling strategies, low overhead structures and a multi-skilled workforce which enable manufacturers to offer competitive unit costs on products even at extremely low production rates. What is your understanding of lean production?

Answer. Lean production is a dynamic process of change driven by a systematic set of principles, methods and practices aimed at improving every measure of industrial performance. Lean refers to the total enterprise: the shop floor to the executive suite, and the supplier to the customer value chain. It combines the benefits of craft production (a concept usually associated with products that are individualized, high quality, and exactly what the customer wants, but costing too much) and mass production (a concept usually associated with high quantity, varying quality, and similar to what the customer wants, but affordable) to obtain. The term lean means less of everything: less design time, less inventory, fewer buffers, fewer management layers, less capital, less cycle time, fewer suppliers, etc. These lean manufacturing principles have been applied successfully, world-wide in the automotive industry and are beginning to be applied in the aircraft industry.

Question. Is this a viable strategy for defense manufacturers?

Answer. Through initial experience with the aircraft industry, lean production is a viable goal for defense manufacturers.

Our Aeronautical Systems Center (ASC) contracted with the Massachusetts Institute of Technology (MIT) in July 1992 to study the applicability of lean principles to the defense aircraft industry. This initiative is supported by a consortium of the defense aircraft industry and ASC. It includes 22 of the largest manufacturing concerns in four aircraft industry sectors; airframe, engines, avionics and subsystems. The effort is known as the Lean Aircraft Initiative (LAI).

The initiative is structured into two phases. Phase 1 was designed to determine if lean concepts could apply to the aircraft industry, to define a program, and to enlist industry participation. MIT's conclusion was that lean production methods could be applied to the defense aircraft industry. They believe the principles could be applied to all manufacturing enterprises. Major segments of the U.S. auto industry have implemented lean principles and there are parallels between the auto industry and the aircraft industry. Some principles have already been implemented in the defense aircraft industry.

Phase 2, a three-year program, is structured to accomplish a detailed assessment of the aircraft industry to establish lean production benchmarks and to identify specific implementation projects. The program process consists of several actions. First, to characterize current operations and practices in such focus areas as product design and development, fabrication and assembly, supplier chains, organization and human resources, policy, and external environment. Second, to define and progressively refine characteristics of the "ideal" lean aircraft industry. Third, to project best practices from within and outside the aircraft industry as benchmarks for the future defense aerospace environment. And fourth, to develop implementation/change strategies to help implement roadmaps for change.

Question. Is it the Department's view that the market determine when moves toward lean production take place or should defense contractors be incentivized to take this approach?

Answer. Market forces have already driven many of the major defense aircraft industry contractors to move individually and together toward lean production. Twenty-two major companies in four sectors (airframes, engines, avionics and subsystems) agreed to participate in the Aeronautical Systems Center (ASC) initiated Lean Aircraft Initiative (LAI). In a survey of the companies participating in the LAI, the Massachusetts Institute of Technology identified 62 examples of lean practices already implemented or in the process of being implemented in those companies.

Although market forces have prompted the defense aircraft industry to pursue lean production, it is in the government's best interest to incentivize this process. Moving toward lean production to compete in a global economy is more than an individual company issue. The defense industry is a national asset whose survival should not be dictated by the market. Government laws, policies and regulations directly affect the defense industries' ability to get lean and government must join in organized programs with industry to develop lean approaches.

Question. What steps is the Air Force taking on present and future procurement programs, most notably the F-22, to avoid the build-up of excess production capacity in anticipation of rates that will never materialize?

Answer. In the case of the F-22 program, the production capacity to produce the first nine Engineering and Manufacturing Development aircraft only has the capability to produce at a rate of 6 to 8 aircraft per year. This production rate is far below the 48 aircraft per year planned for the program. The decision to invest in tooling for increased rates will be made commensurate with the decision to

increase the production rate. This strategy makes it unlikely that the Air Force will build up excess production capacity. The Air Force anticipates that on future programs it can use similar strategies to avoid this potential problem.

Question. What is your view on proposals which suggest the Air Force take a more phased approach to major aircraft acquisitions. That is procuring aircraft at a rate which modernizes 1 squadron a year over a long period of time as opposed to producing at high volume rates dictated by tooling capacity?

Answer. There are several issues to address in answering this question: the misperception that tooling drives production rate, operational issues, cost issues, and the funding impacts of modernizing at 1 squadron per year. The F-22 is used as an illustrative example here as it is the only fighter currently in the planning stage for production.

First, tooling capacity planned for F-22 production is based on the approved buy quantities. Decisions to increase the tooling beyond the minimum essential to start production will be made in parallel with the decision to increase the production rate. The decision to increase the rate of production therefore dictates the tooling capacity needed for that production rate.

Secondly, there is a negative operational impact of modernizing at the rate of one squadron per year. This slow rate would extend the difficult transition to a new aircraft. An Air Force wing in transition must maintain the readiness of its older, outgoing aircraft while attempting to establish and maintain operational capability with the new, incoming aircraft. Essentially, a wing in transition must (1) maintain training of air and ground crews for two aircraft; (2) have supply and maintenance systems that support two different aircraft; and (3) be prepared to fight with two aircraft of differing capabilities. The more quickly this difficult transition can be completed, the more efficient the transition. This slower rate would extend the transition period by at least 1½ years per wing.

Finally, there are cost and funding impacts of modernizing at a lower rate. Producing F-22s at a lower rate increases flyaway cost by allocating program overhead over a reduced F-22 buy, and from the increased inflation impact of a longer production run. In addition, Air Force tactical modernization plans are structured so that F-22 production will be nearly complete when procurement begins for other types of tactical aircraft, such as an F-16 replacement. Slower F-22 production will cause its funding requirement to conflict with these plans.

Question. What is your view as to what constitutes an efficient depot infrastructure for the Air Force in the future?

Answer. In the past the Air Force has done a good job of maintaining the proper mix of both organic and contract depot maintenance operations. Our organic maintenance depots were sized to provide the minimum inherent capability needed to respond to the wide range of contingency operation requirements that a global scenario demanded. The future threat, force structure, and operating hours are all smaller resulting in a smaller total depot maintenance workload requirement in both peace and war. Clearly we need to downsize all of our capability and re-look at the proper organic/

contract mix but we must also maintain the responsiveness and flexibility to deal with an even more uncertain future.

We need to take three steps to posture for the future. First, we must re-size both the organic and contract depot maintenance structure by closing, mothballing, or otherwise disposing of excess capacity in both the public and private sector. Internally, this means that we must be pro-active in the Base Realignment and Closure process. Second, we must continue to invest in modernizing the remaining organic and contract capability so that it is productive, safe, and environmentally sound. We also must ensure that both our residual organic as well as our contract partners remain financially viable and productive by applying the best business practices of the most successful world class industries. Third, once we have satisfied our smaller minimum organic contingency needs we should use the marketplace as the primary tool to ensure efficient operations. In essence we need strong, healthy public/public and public/private competition to ensure that we are getting the most for the taxpayers dollar. The combination of these actions should result in a robust, efficient world class depot maintenance industrial base.

KC-135 REENGINEING

Question. The fiscal year 1994 budget request contains no funding for the continued reengining of the KC-135 tanker force. What is the present and planned force structure of the KC-135 tanker fleet for both active and reserve components today. As of fiscal year 1999?

Answer. ———.

Question. How many KC-135E aircraft have been reengined to the "R" configuration to date?

Answer. None. The FY 93 Authorization Act (Sec 131) directed the reengining of 10E's to R's. The E to R kits should be on contract NLT Jul 93. Reengined Rs should be delivered to field in FY 96.

Question. Describe to the committee exactly how the fiscal year 1993 funds appropriated for KC-135 reengining have been executed.

Answer. The FY 93 funds have been slow executing because the FY 93 Authorization Act direction to reengine 10 Es, 4 As, and apply the remainder to RCs has caused us to restructure resulting in a delay in executing the FY 93 contract. Contract award should occur NLT July 93.

Question. In the Air Force's congressionally directed "Tanker Force Structure Master Plan—1993" it states "there is currently no program to procure additional E to R model reengining kits in fiscal year 1994 and beyond." Explain in detail the rationale for this decision.

Answer. Our studies show that reengining the Es to Rs results in minimal cost savings over the life of the system. Given the austere

financial climate the Air Force cannot afford to fund the E to R conversion without significant economical or operational payback.

Question. Is this decision being revisited in the bottom up review or in the POM?

Answer. The bottom up review is looking at force structure. We don't know of any specific issue relative to KC-135 reengining. Likewise, ARC KC-135E to R-model reengining is presently not scheduled for review during this year's POM.

Question. The report also states that the annual operations and support (O&S) cost for a single aircraft is approximately \$3 million, while the O&S cost for the KC-135R (reengined) is approximately \$2.5 million. This seems to be a very modest savings figure given that the KC-135R is supposed to be virtually maintenance free. How confident are you in these estimates?

Answer. Our life cycle cost analysis showed only a \$17M savings over the fleet life of the airframe (FY 2040). The breakeven point is the year 2021. O&S cost estimates were based on known ANG KC-135E and SAC KC-135A/R operating costs. The Savings estimates were driven primarily by field manpower and fuel. The estimates were provided by the operational commands and represent their best estimate of the actual operating costs. Given the high cost of the reengining kit, it would take a major change in operating cost estimates to significantly impact the model result.

Question. Describe to the Committee any development efforts the Air Force is undertaking to modify the KC-135 for airlift missions.

Answer. TRANSCOM/AMC is field testing a plan to increase the usage of KC-135s in the airlift role. The KC-135 would hold up to 5-6 normal 463L pallets, with some weight restrictions. If the field test proves the concept, we may procure cargo roller kits to expand the KC-135 capability as an airlifter. This could help to alleviate some pressure on our aging C-141s by shifting certain peacetime airlift operations to the KC-135.

Question. To what extent do you believe the KC-135's will have an airlift mission in the future?

Answer. Air Mobility Command is evaluating a cargo roller modification for the KC-135 that would enable the tanker fleet to augment airlift forces especially in peacetime. This capability could help reduce C-141/C-5 peacetime operations tempo, thus increasing their service life. The percentage of KC-135s supporting the airlift mission will be determined once the full evaluation and analysis is complete.

Question. Does the Air National Guard and the Air Force Reserve concur in this decision?

Answer. Yes, the Air Reserve Component concurred with the Congressionally directed "Tanker Force Structure Master Plan-1993."

B-1B PROGRAM

Question. The fiscal year 1994 procurement request for the B-1 is \$213.3 million for depot support and various aircraft modifications. Included in funding for what the Air Force terms "deferred support equipment" as well as interim contractor support. Explain to the Committee the difference between these two support categories.

Answer. Deferred support equipment funding will be used to procure equipment and associated technical data, which will allow Air Force depot maintenance personnel to repair and maintain the B-1. Currently, the Air Force must rely on more costly Interim Contractor Support (ICS) to perform these repairs using the contractor's personnel and original production equipment.

ICS provides for intermediate and depot level repairs and management services for aircraft parts and operational support equipment. ICS is used when organic repair capability is not yet achievable due to system maturity or funding. For the B-1, ICS is necessary until funding is available to procure support equipment and technical data to make the B-1 fully organic for all aircraft logistics other than ECM.

ECM depot support equipment and technical data will be procured as part of the proposed ECM modification, and when deemed cost effective. ICS and long-term B-1 logistics costs will be reduced after procurement of the requested support equipment and fielding of an organic Air Force repair capability.

Question. Explain in detail the current and planned depot maintenance concept for the B-1. What analysis has been completed to date to determine the most cost-effective depot structure?

Answer. The current B-1 depot maintenance concept is based on a four-year cycle of aircraft inspection and analyses of specific systems based on the service life of the components. Current and planned B-1 depot operations also incorporate R&M and safety modifications (i.e., 1122 antenna and overwing fairing), performance of out-of-cycle repairs, and completion of maintenance actions that cannot be accomplished at base level.

The Air Force April 1993 report to Congress, entitled "B-1 Depot Operations Study" discusses the plan for future depot work. The report concludes that certain portions, designated as basic workload, will be retained in organic facilities to provide a base to meet war-time requirements. Full and open competition will be used for all other depot maintenance efforts. Second source contractor-supported depot maintenance has been beneficial for unexpected increases in high priority work (beyond the organic depot capability) such as safety modifications and out-of-cycle repairs.

Question. When will a contract award be made for the single B-1 system integrator?

Answer. The estimated contract award date is late July 1993. The Air Force completed a market survey of potential contractors in the summer of 1992. As a result, Rockwell International was selected as the single integrating contractor for the B-1 conventional upgrade program. The formal request for proposal was released on May 3, 1993.

Question. Are all of the proposed major modification programs (i.e., JDAM, JSOW, TSSAM, ECM) currently funded in the FYDP?

Answer. The majority of the funding for JDAM 1, the development of the ECM upgrade, and associated modifications is contained within the FYDP. The associated modifications for the conventional weapons upgrade includes MIL-STD-1760, avionics computer upgrade, GPS integration, and Anti-Jam Radio. Funding of the advanced weapons (JDAM 3, JSOW, and TSSAM) as well as the

procurement of the ECM upgrade begins in FY98 and continues beyond the FYDP.

Question. Discuss you acquisition strategy for these upgrades. Will they be managed as a package or individually?

Answer. The Air Force has selected Rockwell International to be the integrating contractor for the B-1. The B-1 conventional upgrades are an integrated part of the overall Air Force Bomber Roadmap. The B-1 conventional upgrades will be accomplished using three phases: Phase I includes Cluster Bomb Unit (CBU) capability, Phase II includes JDAM 1, MIL-STD-1760, computer upgrade, and GPS for navigation and precision munitions, as well as an anti-jam radio and ECM enhancement. The Phase II effort includes a risk reduction program to determine the most cost effective defensive system improvement Phase II will include additional precision weapons, namely JDAM 3, Naval mines, JSOW, and TSSAM. JSOW and TSSAM will be integrated in parallel for cost savings.

Question. If they are to be managed separately, what is the relative priority of each mod/upgrade?

Answer. The first priority is to integrate the JDAM 1 munition, which requires the MIL-STD-1760 weapon interface and Global Positioning System. The computer upgrade and anti-jam radio complete the basic steps in preparing the B-1 for precision conventional munitions and to be an effective element of a force package. The ECM upgrade to increase B-1 survivability in conventional scenarios and supportability improvements to ensure aircraft availability are both integral to delivery of conventional munitions. The next step is to add additional precision weapons for greater capability and employment flexibility.

B-2 PROGRAM

Question. The fiscal year 1994 procurement budget request for the B-2 is \$911.0 million primarily for initial spares and peculiar support equipment. A procurement request of almost \$1 billion for a program that was bought out last year is very substantial to say the least. Explain in detail to the Committee the basis for an initial spares request of \$278.2 million, and \$459.7 million for peculiar support equipment, data, and training.

Answer. Initial spares and peculiar support equipment are needed now to support organizational level maintenance and repair of line and shop repairable units. Formulation of a support concept, which drives the initial spares and peculiar support equipment requirement, is based on the user's Operational Requirements Document.

B-2 initial spares were zeroed out in fiscal years 1991, 1992, and 1993. Fiscal year 1994 is the first year for completing the spares buy for supporting 15 operational aircraft. The initial spares request for \$278.2 million can be broken down into weapon system spares, spare engines, and readiness spares packages. The following elements are used to develop an estimate for spares and peculiar support equipment based on specific operational requirements: number of operational aircraft, flying hours, maintenance concept

for peacetime and wartime, mission capable rates, mean time between failure rate, and projected maintenance meantimes.

The peculiar support equipment, data, and training line in the fiscal year 1994 President's Budget is \$459.7 million. Only half of that amount will be used for peculiar support equipment which is needed to support those items which will be organically maintained. This funding procures test program sets and avionics test stations needed to maintain the aircraft delivered to Whiteman AFB. The remainder of the \$459.7 million is for data and training.

Question. Update the Committee on the production and delivery status of the B-2 as well as the flight test schedule.

Answer. All six flight test aircraft have been delivered. The remaining B-2 production aircraft, AV-7 through AV-21, are now in final assembly and checkout at Palmdale. The last 5 aircraft, which have been on long lead since 1990, are 28 percent to 38 percent complete. AV-8, the first operational aircraft, will be delivered in December, 1993. AV-7, AV-9, AV-10, and AV-11 will be delivered in 1994. AV-7 will be used for Electromagnetic Compatibility and Interference testing prior to delivery to Air Combat Command.

As of April, 1993, the six flight test aircraft have completed a total of 1,139 flying hours, or about 28 percent of the total hours planned. The entire operational altitude and speed range have been tested. The fix to the July 1991 low observable anomaly has also been flight tested. The MK-84, B-83 and B-61 weapon shapes were dropped during separation testing. The full scale static structural testing was completed December 16, 1992. The test article failed at a level that exceeded the requirement, 161 percent of limit load which is 11 percent over the requirement of 150 percent. The flight test program continues to meet all objectives and is considered one of the most successful efforts to date.

Question. What does the Air Force intend to do with the special tooling and test equipment from the B-2 line as production draws to a close?

Answer. At this time, the Air Force has decided that one set of major tools should be retained in storage. Northrop has been asked to obtain options and cost estimates from their subcontractors for disposition of tooling and close-out of their production lines. The Air Force will make a decision on lower level tooling after the Northrop subcontractors supply the requested information.

Question. It is the Committee's understanding that the Office of the Secretary of Defense is currently reviewing the Air Force decision to go with contractor logistics support for the B-2 through 2003.

a. Describe the Air Force's present depot/maintenance concept for the B-2.

[CLERK'S NOTE.—A response was provided subsequent to printing and is contained in the Committee's files.]

Question. Why do you believe OSD is reviewing the Air Force decision?

Answer. We consider the review to be a routine execution of OSD oversight responsibilities.

Question. When do you expect a final decision to be made on the final mix of contractor/organic depot support for the B-2?

Answer. By the time the Administration submits the fiscal year 95 President's Budget, we will have sufficient data to make a depot support decision.

Question. Do you expect this review to affect the level of funding necessary for peculiar support equipment in fiscal year 1994?

Answer. No, we do not expect major changes in our peculiar support equipment requirements in fiscal year 1994. The cost of the current B-2 support concept through the first depot maintenance cycle is between \$1640 million and \$1750 million. This cost includes interim contractor support, initial software support, aircraft depot maintenance, support equipment, technical publications, and contractor logistics support. The fiscal year 1994 request for peculiar support equipment will be required no matter what the final mix for depot support will be.

AMRAAM PROGRAM

Question. The Advanced Medium Range Air-to-Air Missile (AMRAAM) is an all weather, medium range missile that enables a pilot to simultaneously engage multiple aircraft in combat. The total fiscal year 1994 budget request for AMRAAM is \$560.7 million for the 8th production lot which procures 749 missiles for the Air Force and 44 missiles for the Navy. What is the total Air Force inventory objective for AMRAAM? Do you expect this number to be substantially revised in the present POM exercise?

Answer. We do not anticipate any substantial changes in the upcoming submission. The current inventory objective is — Air Force AMRAAMs. The current procurement objective is 9,623 Air Force AMRAAMs. The procurement objective includes inventory missile purchases, as well as the procurement of missiles for test firings, maintenance pipeline and other cost-of-business factors through the missile's life. An additional 153 missiles (including 24 of the 749 in fiscal year 1994) are planned for the Air Force SEEK EAGLE program, for a total Air Force procurement of 9,776 missiles.

In previous submissions, the Joint Services substantially reduced AMRAAM quantities because of reduced requirements. The original AMRAAM program was for 18,000 Air Force and 6,500 Navy missiles; program total 24,500.

Question. What is the present inventory of AMRAAMs?

Answer. There are 1795 AMRAAMs in the inventory as of 31 Apr 93.

Question. What is the FMS outlook for the missile?

Answer. The FMS outlook for AMRAAM is excellent. AMRAAM is the only currently fielded active radar guided missile available, although other countries are attempting to develop various missiles of lesser capability. AMRAAM is available for sale through FMS procedures to US allies.

There are presently five countries purchasing inventory weapons: the United Kingdom (UK) (210 missiles for the Royal Navy Sea Harrier); Turkey (116 missiles for the F-16); Korea (96 missiles for the F-16); Norway (100 missiles for the Norwegian Advanced Surface-to-Air Missile System (NASAMS) and F-16) and Finland — for the F/A-18).

Currently, Spain (200 missiles), Germany (320 initially and 480 missiles later), and ——— have Letters of Offer and Acceptance for possible FMS purchases.

The four countries developing Eurofighter 2000, the UK, Italy, Spain, and Germany have missile requirements to equip the aircraft. AMRAAM is currently undergoing integration on that aircraft as its primary weapon.

Question. At what rate are both AMRAAM producers presently facilitized and at what rate are they both producing today?

Answer. Both contractors are facilitized at 60 missiles per month. This "60" figure is based on two eight hour shifts per day, five days per week (2/8/5). Additionally, based on the 2/8/5 assumption, there is surge capacity to approximately 65 missiles per month.

Hughes Aircraft Company is presently on contract for 60 missiles per month and Raytheon Company 50 missiles per month. Both contractors are ahead of the contract schedule, producing over 100 missiles per month (combined) for the last seven months.

Question. Describe the acquisition strategy for AMRAAM in fiscal year 1994 and 1995. Are you considering a downselect to one producer?

Answer. The acquisition strategy for 1994 entails exercising a call for improvements on existing contracts. The fiscal year 1993 Request for Proposal included an option for 1994. We anticipate making the call for improvement in December 1993.

The fiscal year 1995 acquisition strategy is under evaluation for submission to OSD. In authorizing AMRAAM full-rate production, DoD directed the Air Force to review and submit for approval the fiscal year 1994 acquisition strategy. OSD concurred with the Air Force response in their Acquisition Decision Memorandum (ADM) of February 22, 1993. That ADM directed the Air Force to again review and submit for approval the AMRAAM acquisition strategy for Lot IX (fiscal year 1995) and beyond. A possible downselect is under evaluation, however, no decision has been made. Significant price reductions, increased warranties, and incentives currently support continuing the dual source acquisition program. If this success continues, the Air Force plans on maintaining the two top U.S. missile producers in the program.

Question. Update the Committee on the status of production missile testing. How many test shots are planned through the end of fiscal year 1994?

Answer. The demanding and successful testing program for AMRAAM continues. In 1993 the AMRAAM program completed Follow-On Test and Evaluation Phase 1 (FOT&E(1)), though final results are not yet available. Follow-On Test and Evaluation Phase 2 (FOT&E(2)) is beginning. FOT&E(2) contains 40 live fire shots and a captive carry reliability program on F-15 and F-16 aircraft.

During 1993, several significant international AMRAAM test events occurred. The Federal Republic of Germany completed AMRAAM integration testing on the F-4F aircraft equipped with a modified F/A-18 radar. The United Kingdom began integration trials of AMRAAM on the Sea Harrier aircraft at Eglin AFB, Florida. Norway fired the first Norwegian Advanced Surface-to-Air Missile (NASAMS) AMRAAM at Point Mugu, California. NASAMS uses a production AMRAAM in the surface-to-air missile role.

To date there have been 157 production missile launches, broken down as follows (a/o 6 May 93):

| | |
|----------------------------------|-----|
| Total..... | 157 |
| Scored..... | 73 |
| Successful..... | 60 |
| Successful Percentage..... | 82 |
| Separation Shorts..... | 55 |
| Score Pending..... | 8 |
| Other (No-Test, Demos, etc)..... | 21 |

Testing through the end of 1994 contains the following planned firing:

| | |
|---|-----|
| USAF: | |
| AIM-120B (APREP Block II)..... | 10 |
| Pre-Planned Product Improvement Program..... | 8 |
| SEEK EAGLE—F-15E eject station..... | 5 |
| F-15 Radar S/W Development..... | 2 |
| F-16 Radar S/W Development..... | 2 |
| FOT&E (2) (40 total planned)..... | 20 |
| Weapon System Evaluation Program (WSEP—Tyndall AFB, Florida)..... | 106 |
| USN: | |
| SEEK Hornet..... | 5 |
| Navy Operational Test (OT-IIIB)..... | 13 |
| F-14 Radar S/W Development..... | 8 |

Question. What does the most recent data on missile reliability show?

Answer. Current reliability data shows a 33% increase in AMRAAM availability over requirements. This figure is based on availability of AMRAAMs from storage (incoming reliability) and captive carry reliability, demonstrated by the Production Reliability Acceptance Test (PRAT) and flying operations in Southwest Asia (SWA).

The incoming reliability of all fielded AMRAAMs is 95.7%. However, data from SWA indicate some areas of concern, which are being aggressively worked by the AMRAAM JSPO and missile contractors. Integrated teams have been formed to accomplish failure review, identify common failure modes, and identify corrective actions. To date, no common failure modes have been identified from the field returns. Additionally, early production missiles do not incorporate all reliability fixes and design changes presently going into missiles, changes that will improve both in flight and incoming reliability.

INCOMING RELIABILITY—SWA ONLY (AS OF 17 FEB 93)

| | Number of
Missiles | Failures | Requirement | Achieved |
|---|-----------------------|----------|-------------|----------|
| All AMRAAMs..... | | | .95 | .96 |
| Lot II (Fiscal year 1988 procurement): | | | | |
| Hughes..... | 32 | 4 | .95 | .87 |
| Raytheon..... | 32 | 1 | .95 | .97 |
| Lot III (Fiscal year 1989 procurement): | | | | |
| Hughes..... | 96 | 7 | .95 | .93 |

Both contractors' missiles continue to excel in the PRAT conducted at Point Mugu. For the Lot III missiles, the achieved results were 600 hr mean-time-between-failure (MTBF), vice the required 300 hr MTBF. Hughes recently completed PRAT for the Lot IV, achieving a 1000 hr MTBF against a 450 hr requirement.

Data from flying operations in SWA confirm the results from the PRAT. In over 33,000 flying hours, AMRAAM is significantly exceeding its MTBF requirement.

CAPTIVE CARRY RELIABILITY—SWA ONLY (AS OF 17 FEB 93)

| Contractor | Hours | Failures | MTBF requirement | MTBF achieved |
|---------------|--------|----------|------------------|---------------|
| Lot II: | | | | |
| Hughes..... | 8,595 | 3 | 200 | 2,865 |
| Raytheon..... | 6,146 | 9 | 200 | 682 |
| Lot III: | | | | |
| Hughes..... | 19,200 | 12 | 300 | 1,600 |

Question. Can all presently planned product improvements be incorporated into the missile while still achieving the unit cost goal of \$400,000 in FY 1993 constant dollars for an all-up-round missile?

Answer. Yes, given our present planning assumptions of dual sourcing and approximately 700 to 750 Air Force missiles per year.

The goal for the Lot IX (FY 1995 procurement) was a \$400K unit price missile (cost of missile hardware and labor only). This was accomplished ahead of schedule in the Lot VII (FY 1993 procurement) production contract due to the cost cutting AMRAAM Producibility Enhancement Program (APREP), competition between the two primes, and the Foreign Military Sales buys. Our objective is now to further reduce the unit price to \$350K or lower (Project 350) in subsequent lots as we incorporate Pre-Planned Product Improvement (P3I) program performance improvements.

In P3I Phase I, AMRAAM will incorporate identical technologies as the APREP Block II (AIM-120B) insertions, which reduced the AIM-120B missile costs by \$40K per missile. The only P3I Phase I changes are chip insertions in three assemblies and the clipped wings and fins for compressed carriage. There will be software changes for increased performance in electronic counter-measures (ECCM) environments. In parallel with P3I Phase I, the AMRAAM program will implement Project 350 which uses value engineering (VE) as a tool to reduce the missile unit cost to less than \$350K. The AMRAAM VE program has validated over \$1.7 billion in savings and is considered the model producibility program in DoD.

P3I Phase II is primarily focused on improvements in weapon's effectiveness (potential warhead, fuze, arming device, and target detector) and ECCM software updates. No major hardware changes are expected that would cause cost growth offsetting VE cost reductions.

The actual specific changes in P3I Phase III are undefined. The current effort is focused on defining the threat and operational requirements for the year 2000+ timeframe.

The significant AMRAAM initiatives will ensure that P3I changes do not reverse the trend of high performance of lower missile cost.

ELECTRONICS AND TELECOMMUNICATIONS EQUIPMENT

Question. \$23.5 million, a decline of over 50% from the current fiscal year is requested for communications security equipment. What accounts for the significant decline in this request?

Answer. The Air Force budget request for COMSEC does show a decrease of \$30.1 million from FY93 to FY94 (\$53.6 vs \$23.5 million). Because of delays in development of new technology that will provide encryption of COMSEC keying material, the Department rephased all service procurement accounts; Air Force FY94 funding was reduced by \$24 million. The additional \$6.1 million was a result of reductions needed to meet Air Force funding targets.

Question. Provide for the record the equipment to be procured with these funds.

Answer. The equipment to be procured with these funds is listed in detail in the National Security Agency's FY94 Congressional Budget Justification Document. However, a succinct answer is: \$0.2 million for TEMPEST receivers, \$2.0 million for Secure Voice cryptographic devices for radios, \$4.6 million for cryptographic equipment on Space Command ground command and control systems, \$4.7 million for Computer Security-Threat Analysis equipment, \$0.5 million for JTIDS secure data equipment, and \$11.5 million for the Air Force Electronic Key Management System which replaces the present paper key system.

Question. What is the level of unfilled requirements for COMSEC equipment in the "Other Procurement, Air Force" account?

Answer. Approximately \$5.4 million in support of Air Force Wing Command and Control System (AFWCCS) installations remains unfunded in Other Procurement, Air Force. AFWCCS provide the wing commander a composite picture of wing resources to facilitate sortie generation and reporting.

Question. \$57.4 million is requested for Strategic Command and Control. This program provides for procurement of mission critical systems in support of U.S. Strategic Command and the National Military Command System. Included in this request is \$33.7 million to procure ground computer and communications systems that support the B-2 bomber. What total cost of this ground support system is for the B-2 fleet.

Answer. All \$33.7 million is in support of the B-2 fleet. The B-2 support is heavily dependent upon an on-line, real-time computer network linking the operational location at Whiteman AFB, MO with HQ ACC at Langley AFB, VA and other logistics support sites, such as Tinker AFB, OK and Wright-Patterson AFB, OH. The total procurement cost is estimated at \$162 million.

Question. When is it scheduled for completion?

Answer. System completion dates vary by support system. Improved Technical Data System (ITDS) and Power Conditioning and Continuation Interfacing Equipment (PCCIE) acquisition and installations will be completed in FY98. The remaining B-2 ground support systems are phased between FY93 and FY98 to coincide with the B-2 deployment schedule.

Question. How does the completion date compare to the deployment schedule for the B-2 bomber program?

Answer. The procurement schedule for ground support equipment begins in FY93 and extends through FY98 and is structured to support and align closely with the delivery dates and scheduled deployment of the B-2 aircraft.

Question. A total of \$85.3 million is requested for the MILSATCOM program which provides ground equipment for various satellite programs. Your prepared statement indicates that you will be procuring some Milstar related ground equipment but not Milstar terminals. What is the Air Force's inventory objective for Milstar satellite terminals?

Answer. A total of 74 ground command post terminals (procured with other procurement) and 14 airborne command post terminals (procured with aircraft procurement) will satisfy current command post terminal requirements. Also using other procurement funding, the Air Force will procure from the Army, 97 Secure Mobile Anti-jam Reliable Tactical Terminals (SMART-T) and 232 Single Channel Advanced Man Portable (SCAMP) terminals with delivery in the FY98 and beyond timeframe.

Question. How many are in the present inventory and pipeline?

Answer. By the end of FY93, the Air Force will have delivered 20 ground command post terminals and 12 airborne command post terminals. The rest of the required 54 ground command post terminals will have been purchased by the end of FY93 with delivery through FY96. The remaining two airborne command post terminals in the pipeline will be purchased in FY94 and delivered by FY95.

Question. To what extent will the Air Force have achieved their Milstar terminal inventory objective when the IOC of the Milstar constellation of satellites is attained?

Answer. The terminal procurements programmed are consistent with the restructure of the Milstar program undertaken in 1991. Available terminals will meet our needs for system operational test and support the initial operating capability.

ENVIRONMENTAL PROJECTS

Question. \$39.2 million is requested for fiscal year 1994 for environmental projects. These funds are to support environmental compliance, spill response and pollution prevention. Your statement mentions that these funds are to "begin redressing this problem." What are the longer range funding requirements for this program?

Answer. The funds required for fiscal year 1994 will support over 100 environmental projects, primarily in the area of pollution prevention. Since Environmental Projects is a new program, we are only beginning to define our requirements. We have identified requirements through fiscal year 1999 that support current federal, state and local policies and regulations in addition to Air Force environmental goals. Requirements, however, are evolving and we must be flexible to adapt to these changes. For example, the requirements outlined in Montreal protocol, an international treaty targeting the control/elimination of ozone-depleting chemicals (ODCs), were expanded and accelerated by the President in February 1992. The Clean Air Act Amendments of 1990 will also have significant compliance implications in the outyears, particularly in

the areas of ODCs and air emissions reductions from industrial operations. Changes such as this will drive modifications to the composition and schedules of these programs in fiscal years 1995-1999. For information purposes the funding by fiscal year through the POM years for the 3080 Appropriation is as follows:

[In millions of dollars]

| | |
|--------------|--------|
| Fiscal year: | |
| 1994 | \$39.2 |
| 1995 | 23.1 |
| 1996 | 8.0 |
| 1997 | 11.1 |
| 1998 | 9.8 |
| 1999 | 2.3 |

Environmental Projects, however, as a program is not limited to the 3080 Appropriation. In addition to 3080, there are Environmental Projects lines funded in the 3010, 3020, 3600, and 3400 Appropriations.

Question. Your statement mentions that the fiscal year 1994 funding will support projects at 18 bases. What criteria have been set to determine the priorities for this program?

Answer. The highest priorities are given to: (1) pollution prevention projects mandated by public law; (2) projects designed to meet the terms of Montreal Protocol; and (3) projects that provide a pay-back in less than three years.

Question. What is the extent of the backlog of projects for this program?

Answer. Environmental Projects is a new line initiated in the FY94 President's Budget, and the projects identified for FY94 are just a start. At this time we do not know the total extent of our backlog in this critical area. We are in the process of surveying our commands to identify projects required to comply with U.S. treaty obligations and public law.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, MARCH 24, 1993.

C-17 AIRCRAFT PROGRAM

WITNESSES

LT. GEN. JOHN E. JAQUISH, USAF, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR ACQUISITION

MAJ. GEN. PATRICK P. CARUANA, USAF, DIRECTOR, LONG-RANGE POWER PROJECTION, SPECIAL OPERATIONS FORCES, AIRLIFT, AND TRAINING PROGRAMS

MAJ. GEN. CHARLES E. FRANKLIN, USAF, PROGRAM EXECUTIVE OFFICER FOR TACTICAL AND AIRLIFT PROGRAMS

BRIG. GEN. ROBERT W. DREWES, USAF, DEPUTY ASSISTANT SECRETARY FOR CONTRACTING

INTRODUCTION

Mr. MURTHA. The Committee will come to order.

We want to welcome General Jaquish and this distinguished panel. I called General McPeak and said I hoped that we would receive accurate information about the C-17 program. I know with the A-12 right up to the day it was cancelled, we were getting information that was not accurate.

We were told that everything was going well with no problems.

When General McPeak told me General Jaquish was going to be here, I knew we would get the accurate information, that we wouldn't have to look back and be concerned that the projections which you make are not accurate and that we would get a balanced picture of the whole thing.

I have asked Peter Visclosky, as a new member, to take this on as a new project. We have members for and against the C-17. The overwhelming sentiment on this Committee is for this system because we know how important it is, but finding the money is so difficult.

DEFENSE BUDGET LEVELS

I have told the President that I saw no way we could commit to this type of budget level in the outyears unless the tempo of operations is reduced. I think we are going to struggle even this year.

We would like to put back the pay raise for at least the lower level of the enlisted ranks and lieutenant up through captain. We think that is \$2.5 billion. So you can see that is not going to be an easy thing to do.

We have to find that money someplace in the system. If we take the cap off that is a different situation. Any way we look at it if the tempo continues something is going to give.

As I said in a speech before the American Preparedness Association, in 1980 we had the same size force we had in 1991. We

couldn't pull off Desert One in 1980, and that was a fairly minor operation. We pulled off DESERT STORM, which was a major success because we had well trained, well motivated, and well equipped troops.

We don't want to return, because we spent money erroneously, to where we have a hollow force again. So the testimony you give today may not be the most important testimony you have ever given before a committee, but it will be key.

This is a \$40 billion program. What I asked Mr. Visclosky to look at was the possibility of producing zero or 12 aircraft. If we go to 12, you can understand the ramp up in the program and the reduced cost per plane, and yet, if we go to zero, we are going to have tremendous costs upfront in order to stop the program. I told him to look at every alternative and asked Mr. McDade to put somebody on the minority side on the program so we can get a cooperative conclusion. We want one person who can really spend some time with the staff in getting these kinds of things done.

I just want to say how much I admire the work that you have done, General Jaquish, and the difficulties we face this year are not insurmountable, but we have a residual force. I am talking about all the things we have done in the past that help us through this year. If we make mistakes this year and spend money frivolously on a program that is not going anywhere, it will hurt us in the out years. We have some powerful members on this Committee who have a direct interest in the program and they want this program to go, but they have assured me that if McDonnell Douglas doesn't get this straightened out, they will lose interest in the program.

I am hopeful that in your presentation you will tell us where we are, what you see can be done, and if there are any alternatives to the program that you see.

Mr. McDade?

REMARKS OF MR. MCDADE

Mr. MCDADE. Thank you, Mr. Chairman.

Welcome, General. You probably have the longest track record on the C-17 in front of this Committee of anybody who has ever testified.

I agree with what the Chairman has said. This is D Day—almost decision day—in front of this Committee today. We rely upon you heavily.

As the Chairman indicated, on his initiative we have looked at MILSTAR, at the ATF, the advanced cruise missile, all difficult, troubled programs, and we have made an effort in those instances to reach bipartisan conclusions. We will be doing that, General, in this program.

General, I don't know of any witness we have had here who has been more candid than you. This is a very difficult problem for all of us on the Hill and we want to work together. We need absolute candor. We have to see where we are going with the defense budget falling off the table if you will, and resources are going to be hotly contended for. General, we welcome you back again. We know that

this is a difficult thing for all of us. We are glad to have you here. We look forward to your testimony, General.

General JAQUISH. Thank you, Mr. McDade.

Mr. MURTHA. General, your entire detailed testimony will appear in the record. If you will summarize, we will get right to the questions.

The biographies of any of the gentleman accompanying you that aren't in the record will be put in the record, without objection.

SUMMARY STATEMENT OF GENERAL JAQUISH

General JAQUISH. Mr. Chairman and Mr. McDade and other Members, we find this opportunity to come forward to you and tell you the facts about the C-17 program in the most unabridged, open, clear way we can to be of benefit to us, and hopefully I think you will find this of benefit to you.

You commented on the seriousness of this hearing. We look at this hearing as a serious hearing. In my personal experience, this is probably the most important hearing I have been part of.

We are here to lay out the facts. The last thing we want to do is give you bad information. So let me say that, Mr. Chairman.

Now, I have with me three other people. I would like to tell you who they are.

First I have General Charles Franklin, the Program Executive Officer. In his portfolio, he has many aircraft. The Program Director reports to him and he serves as Acquisition Executive and on the Service Acquisition Staff.

Mr. MCDADE. How many years in uniform?

General FRANKLIN. Thirty-one years.

Mr. MCDADE. How many years associated with the C-17 program?

General FRANKLIN. I came on the job August 1991; a little over eighteen months.

General JAQUISH. Ed is a professional acquisition person previously in a job immediately prior to this, the Program Director for AMRAAM, when this committee went through the kind of problems Ed was responsible for fixing in AMRAAM.

He is responsible for the execution of this program.

When General Franklin testifies today, it will be from that personal perspective of his personal responsibilities to ensure this program is executed.

To his right is General Caruana, who is on the Acquisition staff. He is in charge of doing staff work associated with bombers, tankers, airlift and training-type airplanes. He is responsible for doing the planning, programming and budgeting work which supports submissions to Congress as well as interfacing with the user on requirements and the focal point to interface with members of your staff.

He is a long-term operator and during Desert Shield/Desert Storm worked for General Horner and was responsible for bombers, tankers and recce aircraft.

He has one year on the staff.

Mr. MCDADE. How many years in uniform total?

General CARUANA. Approximately 30 years.

General JAQUISH. To my left is General Bob Drewes also on the Service Acquisition Staff, head of contracting for the United States Air Force.

He is a long-term career contracting person. He is an expert in the area of contracting and some of the issues we will probably discuss today bear on that sort of expert testimony.

That is why I have asked him to be here. He has been on the job one year and prior to that was head of contracting for the Air Force Systems Command.

I am ready for your questions, Mr. Chairman.

[The statement and charts of General Jaquish follow:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION OF THE COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: C-17 Current Program Status

STATEMENT OF: LIEUTENANT GENERAL JOHN E. JAQUISH
Principal Deputy
Assistant Secretary of the Air Force (Acquisition)

March 1993

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON APPROPRIATIONS,
UNITED STATES HOUSE OF REPRESENTATIVES



Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

LIEUTENANT GENERAL JOHN E. JAQUISH

Lieutenant General John E. Jaquish is principal deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.

General Jaquish was born March 9, 1937, in Atlantic City, N.J., and graduated from Charlotte Hall Military Academy in Maryland in 1955. He received a bachelor of arts degree in economics from Rutgers University in 1959. The general completed Air Command and Staff College in 1971, and the Army War College in 1980.

He was commissioned as a second lieutenant through the Reserve Officer Training Corps program and entered pilot training in March 1960 at Webb Air Force Base, Texas. In November 1961 he was assigned as an F-102 pilot with the 431st Fighter-Interceptor Squadron, Zaragoza Air Base, Spain. He returned to the United States in November 1963 and served as an F-102 instructor pilot with the 82nd Fighter-Interceptor Squadron, Perrin Air Force Base, Texas. In September 1966 he transferred to the 539th Fighter-Interceptor Squadron, McGuire Air Force Base, N.J., where he flew F-106s.



From November 1967 to January 1969 he was assigned as an F-4 squadron weapons and tactics officer with the 347th Tactical Fighter Wing, Yokota Air Base, Japan. General Jaquish transferred to Headquarters 5th Air Force, Fuchu Air Station, Japan, and served as chief of the Weapons and Tactics Section from June 1969 to June 1970. He then attended Air Command and Staff College.

In September 1971 the general was assigned to the 388th Tactical Fighter Wing, Korat Royal Thai Air Force Base, Thailand, as wing weapons and tactics officer. He became a requirements officer at Headquarters Tactical Air Command, Langley Air Force Base, Va., in October 1972. In July 1974 he was assigned as operations officer of the Tactical Air Command detachment for F-15 follow-on test and evaluation at Luke Air Force Base, Ariz.

General Jaquish returned to Langley Air Force Base in September 1976 and assumed command of the 1st Tactical Fighter Wing's 27th Tactical Fighter Squadron. After graduation from the Army War College, he transferred to the 405th Tactical Training Wing, Luke Air Force Base, as deputy commander for operations. Upon activation of the 325th Fighter Weapons Wing, U.S. Air Force Air Defense Weapons Center, Tyndall Air Force Base, Fla., in July 1981, he was assigned as its commander.

In April 1983 the general returned to Tactical Air Command headquarters. He served first as assistant deputy chief of staff for requirements, then as inspector general, and later as chief of staff. In October 1986 he was assigned as commander of the U.S. Air Force Tactical Air Warfare Center, Eglin Air Force Base, Fla. From February 1989 to May 1990 he was director, tactical programs, Office of the Assistant Secretary of the Air Force for Acquisition. He assumed his present position in June 1990.

(Current as of July 1990)

OVER

The general is a command pilot. He has more than 3,500 flying hours in the F-102, F-106, F-4 and F-15, and 104 combat missions in the F-4E. His military awards and decorations include the Distinguished Service Medal, Legion of Merit, Distinguished Flying Cross, Bronze Star Medal, Meritorious Service Medal with two oak leaf clusters, Air Medal with seven oak leaf clusters, Joint Service Commendation Medal with oak leaf cluster, Air Force Outstanding Unit Award with oak leaf cluster, National Defense Service Medal, Armed Forces Expeditionary Medal, Vietnam Service Medal with three service stars, Small Arms Expert Marksmanship Ribbon, Republic of Vietnam Gallantry Cross with Palm, and Republic of Vietnam Campaign Medal.

He was promoted to lieutenant general June 1, 1990, with same date of rank.

General Jaquish is married to the former Sandra J. Carson of Wellsboro, Pa. They have three children: Michelle, Heidi and John.

GOOD MORNING MR CHAIRMAN AND MEMBERS OF THE COMMITTEES. I CERTAINLY WELCOME THIS MOST TIMELY OPPORTUNITY TO PROVIDE YOU THE STATUS OF THE C-17 PROGRAM. TO ENSURE I PAINT THE ENTIRE PICTURE FOR YOU, I PLAN TO ADDRESS PROGRAM ACCOMPLISHMENTS, PROGRAM CHALLENGES, AND ONGOING ACTIONS TO MEET THESE CHALLENGES.

BEFORE I FOCUS ON THE KEY ELEMENTS OF THE C-17 PROGRAM, I WOULD LIKE TO TOUCH ON OUR NATION'S CRITICAL NEED FOR AIRLIFT. FROM DESERT STORM TO THE CURRENT HUMANITARIAN RELIEF EFFORTS IN SOMALIA AND BOSNIA, THE CORE OF OUR ABILITY TO SUCCESSFULLY PERFORM THESE MISSIONS IS AIRLIFT. FUTURE DEFENSE BUDGET REDUCTIONS, DIVERSE GLOBAL TROUBLE SPOTS AND A CHANGING NATIONAL SECURITY ENVIRONMENT ONLY SERVE TO STRENGTHEN OUR DEPENDENCE UPON A STRATEGY OF GLOBAL REACH/GLOBAL POWER. AIRLIFT IS THE LINCHPIN OF THIS STRATEGY. ALTHOUGH OUR AIRLIFT FLEET HAS PERFORMED ADMIRABLY IN RECENT CONTINGENCIES, THE C-141 IS WEARING OUT. OUR AIRLIFT FLEET REQUIRES MODERNIZATION IF WE ARE TO MAINTAIN OUR ABILITY TO PROJECT FORCES WORLDWIDE. THE PRINCIPAL QUESTION TO BE ANSWERED IS, "SHOULD WE CONTINUE TO RELY ON THE C-17 FOR THIS MODERNIZATION?" THE AIR FORCE BELIEVES THE ANSWER TO THAT QUESTION IS YES. THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF CERTIFIED TO THE SECRETARY OF DEFENSE IN SEPTEMBER 1992 THAT THE C-17 AIRCRAFT CONTINUES TO BE THE MOST COST-EFFECTIVE MEANS TO MEET CURRENT AND PROJECTED AIRLIFT REQUIREMENTS. HE BASED THIS CONCLUSION, AFTER CONSULTATIONS WITH THE COMMANDERS OF UNIFIED AND SPECIFIED COMMANDS, UPON A THOROUGH JOINT STAFF REVIEW OF ALL OTHER AIRLIFT OPTIONS. THIS SAME CONCLUSION WAS REACHED BY THE STAFF OF THE FORMER SECRETARY OF DEFENSE, WITH HIS UNDER SECRETARY OF DEFENSE FOR ACQUISITION

CONCURRENCE, FOLLOWING AN IN-DEPTH PROGRAM REVIEW IN JANUARY 1993. A LOOK AT RECENT EVENTS SUPPORTS THESE CONCLUSIONS. OUR PROGRAMMED AIRLIFT FLEET, WITH THE C-17 AS THE CORNERSTONE, WOULD HAVE DELIVERED 36 PERCENT MORE CARGO DURING THE FIRST 45 DAYS OF DESERT SHIELD THAN OUR CURRENT FLEET ACTUALLY DELIVERED. IN THE BOSNIA RESUPPLY OPERATION, ONE C-17 WOULD PROVIDE A 250 PERCENT INCREASE IN AIRDROP CAPABILITY OVER THE C-130. THE BOTTOM LINE IS THAT AIRLIFT FLEET MODERNIZATION IS ESSENTIAL TO ENHANCE OUR FORCE PROJECTION CAPABILITY. THIS CAPABILITY IS VITAL TO MAINTAINING OUR NATIONAL STRATEGY, AND THE MOST COST-EFFECTIVE SOLUTION TO MEET THE REQUIREMENT WAS AND CONTINUES TO BE THE C-17.

THESE COMMENTS ARE NOT INTENDED TO MASK THE PROBLEMS THAT WE HAVE ENCOUNTERED IN THE C-17 PROGRAM. I WILL DEAL WITH SOME OF THESE IN MY LATER COMMENTS AND EXPECT TO ANSWER YOUR QUESTIONS IN THESE AREAS AS WELL. I WOULD HOWEVER, LIKE TO POINT TO THE MANY SIGNIFICANT ACCOMPLISHMENTS OF THE C-17 PROGRAM. WITH FIVE C-17s IN THE FLIGHT TEST PROGRAM AND A SIXTH TO BE DELIVERED THIS MONTH, DEVELOPMENTAL PROGRESS CONTINUES. TO DATE, NEARLY 300 MISSIONS COMPRISING OVER 1000 FLIGHT HOURS HAVE OCCURRED WITH THE LONGEST MISSION OF 8.3 HOURS FLOWN IN SEPTEMBER 1992. ALSO IN SEPTEMBER, ON THE ANNIVERSARY OF THE FIRST C-17 FLIGHT, ALL FOUR C-17s THAT HAD BEEN DELIVERED FLEW IN A FOUR SHIP FORMATION. THE C-17 SET FOURTEEN "ALTITUDE WITH PAYLOAD" WORLD RECORDS. THE AIRCRAFT HAS FLOWN AS SLOW AS 83 KNOTS, WHICH IS 14 KNOTS SLOWER THAN THE C-130 MINIMUM LANDING SPEED, AND AS FAST AS ITS LIMIT MACH, .875, WHICH IS FASTER THAN THE LIMIT MACH FOR BOTH THE C-141 AND C-5. IT HAS AIR REFUELED BEHIND BOTH A KC-10 AND A KC-135 AND MADE A FULL STOP

LANDING WITHIN 2430 FEET AT A GROSS WEIGHT OF 350,000 POUNDS. THIS SHORT DISTANCE, EVEN THOUGH NOT A MAXIMUM GROSS WEIGHT LANDING, IT IS A GOOD INDICATION THE AIRCRAFT WILL PERFORM WELL IN THE SMALL AIRFIELD ENVIRONMENT. LAST MONTH, THE INITIAL ARMY OPERATIONAL LOAD DEMONSTRATION TOOK PLACE AT FORT HOOD, TEXAS. VARIOUS CONFIGURATIONS OF ARMY EQUIPMENT INCLUDING AN M1A1 ABRAMS TANK, THE ARMY'S HEAVIEST TANK, BLACK HAWK HELICOPTERS, BRIDGE TRUCKS, AND FIVE TON TRUCKS WERE SUCCESSFULLY LOADED. FURTHER PROOF OF THE C-17'S CARGO HANDLING CAPABILITY CAME ON FEBRUARY 5, 1993 WITH THE FIRST FLIGHT CARRYING AN M1 TANK.

THERE ARE OTHER POSITIVE TRENDS THAT INDICATE OVERALL PROGRAM IMPROVEMENT. OVER THE PAST 16 MONTHS THE C-17 PROGRAM HAD SIGNIFICANT IMPROVEMENTS IN THE AREA OF PRODUCTION. THIS IS DUE IN LARGE PART TO THE EXPERIENCED AND STRONG MCDONNELL DOUGLAS MANAGEMENT TEAM NOW IN PLACE AND THE INVOLVEMENT OF TOP LEVEL CORPORATE EXECUTIVES. EACH AIRCRAFT HAS MOVED INTO "MAJOR JOIN" WITH A HIGHER PERCENTAGE OF WORK COMPLETE THAN ITS PREDECESSOR THEREBY REDUCING THE COST AND SCHEDULE IMPLICATIONS OF OUT OF POSITION WORK. FOR EXAMPLE, T-1, THE FIRST TEST AIRCRAFT, WAS 32% COMPLETE WHEN IT MOVED TO "MAJOR JOIN" AND P-9 WAS 94%. AS A RESULT WE HAVE ALSO SEEN A REDUCTION IN AIRCRAFT COMPLETION TIME. IT TOOK 36 MONTHS TO ASSEMBLE T-1, WE REDUCED THAT BY 25%, TO 27 MONTHS, FOR P-4 AND WE PROJECT P-7 WILL BE REDUCED AN ADDITIONAL 15%, TO 21 MONTHS. QUALITY OF THE HARDWARE CONTINUES TO IMPROVE AS WELL WITH REWORK AND REPAIR COSTS COMING DOWN A 70% IMPROVEMENT SLOPE. THE PROGRAM OFFICE IS AGGRESSIVELY WORKING WITH THE CONTRACTOR TO IMPROVE EFFICIENCY AND REDUCE COST. SEVERAL COST REDUCTION INITIATIVES

ARE UNDER WAY WHICH WE ESTIMATE WILL REDUCE TOTAL PROGRAM COST BY OVER \$500M. THESE PROGRAMS ARE JOINTLY FUNDED BY THE CONTRACTOR AND THE AIR FORCE. WITH RESPECT TO SCHEDULE, WE RECENTLY RESET THE DELIVERY SCHEDULE BEGINNING WITH AIRCRAFT P-7. THE NEW SCHEDULE IS REALISTIC, ACHIEVABLE AND PROVIDES FOR A MORE EFFICIENT MANUFACTURING PLAN, MINIMIZES PLANT CLOSURE IMPACT, REDUCES CONCURRENT ACTIVITIES, REDUCES PARTS SHORTAGES, AND IMPROVES EFFICIENCY.

WHILE I HAVE TAKEN THE TIME TO DISCUSS A FEW OF OUR RECENT ACHIEVEMENTS, SIGNIFICANT PROBLEMS HAVE OCCURRED IN THE PROGRAM TO DATE AND CHALLENGES REMAIN.

PERHAPS THE MOST SIGNIFICANT PROBLEM TO DATE AND ONE THAT CONTINUES TO IMPACT THE C-17 PROGRAM IS THE COST OVERRUN ON THE INITIAL C-17 FIXED PRICE DEVELOPMENT CONTRACT. THIS CONTRACT INCLUDES: PRODUCTION OF THE FLIGHT TEST AIRCRAFT, TWO GROUND TEST ARTICLES, THE FIRST SIX PRODUCTION AIRCRAFT, AND THE FLIGHT TEST PROGRAM. AS MOST OF YOU ARE PROBABLY AWARE, IT APPEARS THAT THE CONTRACTOR WILL EXCEED THE \$6.7 BILLION DOLLAR CEILING ON THIS CONTRACT BY AT LEAST \$1.1 BILLION DOLLARS. WHILE WE HAVE SEEN NO LACK OF COMMITMENT TO THE PROGRAM, A LOSS OF THIS MAGNITUDE IMPACTS THE CONTRACTOR'S FLEXIBILITY IN SOLVING THE NORMAL DEVELOPMENT PROBLEMS DISCOVERED IN THE AIRCRAFT TEST PROGRAM. ONE OF THE MOST WIDELY PUBLICIZED PROBLEMS OCCURRED ON OCTOBER 1, 1992 WHEN THE STATIC TEST ARTICLE WING FAILED. AS IS THE CASE FOR ALL AIRCRAFT ACCEPTED INTO THE INVENTORY, THE AIR FORCE REQUIRES AIRCRAFT TO BE TESTED TO ONE AND A HALF TIMES THE FORCES THEY WILL ENCOUNTER IN OPERATION. THIS PROVIDES A SAFETY MARGIN OF 50%. BOTH

WINGS FRACTURED AT APPROXIMATELY 130% LOAD LIMIT. ALTHOUGH THIS IS ABOVE THE MAXIMUM LOADS THE AIRCRAFT WILL SEE IN ACTUAL OPERATIONS, WE STILL DEMAND A HIGHER SAFETY MARGIN. TO ASSESS THE INCIDENT, AN EXECUTIVE INDEPENDENT REVIEW TEAM COMPRISED OF WORLD RENOWNED STRUCTURAL ENGINEERS AND AIRCRAFT DESIGN EXPERTS FROM CIVILIAN AND MILITARY COMMUNITIES, WAS FORMED. THEIR CHARTER WAS AN UNRESTRICTED REVIEW OF AIRCRAFT DESIGN METHODOLOGY, FAILURE INVESTIGATIONS AND RECOMMENDED FIXES. ON FEBRUARY 26, 1993 THIS TEAM PRESENTED THEIR CONCLUSIONS AND RECOMMENDATIONS FOR CORRECTING THE WING DEFICIENCIES TO THE ACTING SECRETARY OF THE AIR FORCE. BASED UPON THEIR ANALYSIS, A DETAILED STRUCTURAL MODIFICATION WAS SELECTED BY THE AIR FORCE AS THE APPROACH TO MEET THE ORIGINAL STRENGTH REQUIREMENTS. THIS APPROACH, WHICH THE PREVIOUS USD(A) CONCURRED WITH, ALSO PROVIDES OPTIMUM GROWTH POTENTIAL WITH THE LEAST SCHEDULE IMPACT AND MINIMAL PROGRAM RISK. THE TEAM WILL REMAIN INTACT THROUGH THE REPAIR OF THE STATIC ARTICLE, WHICH IS ANTICIPATED TO RESUME TESTING IN THE JULY TIME FRAME. WHILE THIS INCIDENT CREATED A PROGRAM SET BACK, THE POINT I WOULD LIKE TO LEAVE WITH YOU IS THAT WE HAVE A STRAIGHT FORWARD TECHNICAL SOLUTION TO MEET THE ORIGINAL STRENGTH REQUIREMENT AND WE ARE ON THE ROAD TO RECOVERY.

ANOTHER ISSUE WHICH HAS DRAWN ATTENTION IS THE DEFICIENCY IN RANGE/PAYLOAD. CURRENTLY, THE AIRCRAFT FALLS SHORT OF MEETING THE 2400 NAUTICAL MILES /160,000 POUNDS SPECIFICATION BY ABOUT 6% IN CARGO CAPACITY. WE HAVE INSTITUTED A LOW RISK/LOW COST PLAN THAT WILL REDUCE THE SHORTFALL TO APPROXIMATELY 1.3%. ADDITIONAL INVESTMENT OR CHANGES TO THE AIRCRAFT TO TOTALLY RECOVER THE SPECIFICATION WILL HAVE TO BE WEIGHED AGAINST THE IMPACT OF LIVING WITH THE SHORTFALL. BASED ON

THE UPDATED COST EFFECTIVENESS ANALYSIS CONDUCTED FOR THE JANUARY 1993 UNDER SECRETARY OF DEFENSE FOR ACQUISITION REVIEW, THE C-17 REMAINS THE MOST COST EFFECTIVE SOLUTION TO MEET CURRENT AND PROJECTED AIRLIFT REQUIREMENTS EVEN IF NONE OF THE CURRENT 6% PAYLOAD SHORTFALL IS RECOVERED.

AN ADDITIONAL AREA OF CONCERN IS THE FLIGHT TEST PROGRAM. CERTAINLY OUR ACCOMPLISHMENTS TO DATE HAVE BEEN IMPRESSIVE; HOWEVER, THE PROGRAM HAS EXPERIENCED DELAYS AS A RESULT OF LATE AIRCRAFT DELIVERIES, LOWER THAN PLANNED FLY RATES, INCORPORATION OF DEFERRED WORK AND LOWER THAN PLANNED FLIGHT TEST EFFICIENCY. WE HAVE FORMED PROCESS ACTION TEAMS TO IMPROVE MISSION PLANNING, DATA MANAGEMENT, AND FLIGHT, GROUND AND MANAGEMENT OPERATIONS. WITH THESE IMPROVEMENTS IN PLACE AND ALL FLIGHT TEST AIRCRAFT NOW ON BOARD, WE ARE CONFIDENT THAT WE CAN RAISE OUR EFFICIENCY FROM THE CURRENT 47 PERCENT TO A MORE RESPECTABLE 60 PERCENT. THIS INCREASED EFFICIENCY COUPLED WITH THE RECENTLY ADDED TEST MONTHS WILL RESULT IN AN EXECUTABLE FLIGHT TEST PROGRAM.

ONE FINAL QUESTION I WILL ADDRESS CONCERNS THE CONTRACTOR'S ABILITY TO PRODUCE AND DELIVER AIRCRAFT ON SCHEDULE AT A COST ACCEPTABLE TO THE GOVERNMENT. WHILE THERE ARE NO GUARANTEES, WE ARE CONFIDENT THAT HE CAN. PREVIOUS COST PROJECTIONS WERE OF NECESSITY BASED ON VERY LIMITED ACTUAL PRODUCTION DATA. WITH SUBSTANTIAL PRODUCTION DATA NOW AVAILABLE, WE HAVE A MUCH HIGHER DEGREE OF CONFIDENCE IN OUR ESTIMATES. I MUST TELL YOU THOUGH, THAT THIS HIGHER FIDELITY DATA DOES REVEAL AN INCREASE IN PRODUCTION COSTS. WE REALIZE THAT THE ONLY BUDGET DATA AVAILABLE TO CONGRESS REFLECTS THE FY93

PRESIDENT'S BUDGET. NEW BUDGET FIGURES SHOULD BECOME AVAILABLE FROM THE ADMINISTRATION TO CONGRESS BY EARLY APRIL.

AS YOU ARE AWARE, THE DEFENSE DEPARTMENT DEPUTY INSPECTOR GENERAL RELEASED A REPORT IN MID-JANUARY WHICH CONTAINED ALLEGATIONS, FINDINGS, AND RECOMMENDATIONS ADDRESSING ACTIONS TAKEN BY AIR FORCE OFFICIALS FROM JULY THROUGH DECEMBER 1990 ON THE C-17 PROGRAM. AT THE DIRECTION OF THE SECRETARY OF DEFENSE, THE ACTING SECRETARY OF THE AIR FORCE HAS FORMED A TEAM TO REVIEW ALL ASPECTS OF THE FACTS AND CIRCUMSTANCES CONCERNING THE IG REPORT. BASED ON THE FINDINGS OF THIS REVIEW, THE AIR FORCE WILL MAKE SPECIFIC RECOMMENDATIONS TO THE DEPUTY SECRETARY OF DEFENSE BY MID-APRIL. SINCE THIS REVIEW IS ON-GOING, IT WOULD BE INAPPROPRIATE TO DISCUSS THE CIRCUMSTANCES SURROUNDING THESE ALLEGATIONS AT THIS TIME.

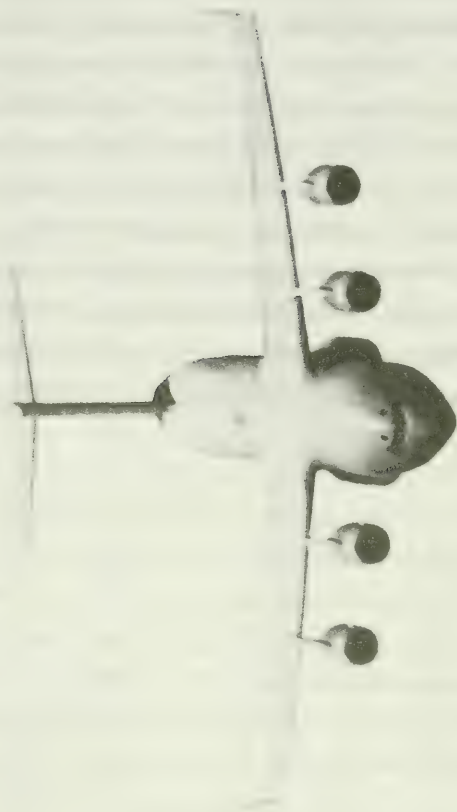
IN SUMMARY, I HAVE COVERED THE PROGRESS AND PROBLEMS CONCERNING THE C-17 PROGRAM. WHILE THE PROGRAM HAS HAD ITS UPS AND DOWNS, WE BELIEVE, AND THE FORMER UNDER SECRETARY OF DEFENSE FOR ACQUISITION CONCURRED, THAT FIXES ARE IN PLACE TO KEEP THE PROGRAM ON TRACK. HOWEVER, TO KEEP IT ON TRACK WE MUST CONTINUE TO SEE THE CORPORATE COMMITMENT, BOTH IN MANAGEMENT ATTENTION AND RESOURCES, THAT IS NECESSARY TO TRANSITION FROM THE DEVELOPMENT AND TEST PHASE INTO A HIGHER RATE OF PRODUCTION. IN TURN, WE THE GOVERNMENT MUST PROVIDE A STABLE PROGRAM FOR THE CONTRACTOR TO EXECUTE.

AGAIN, THANK YOU FOR THE OPPORTUNITY TO BE HERE TODAY. I WILL BE GLAD TO ANSWER ANY QUESTIONS YOU MAY HAVE, BUT FIRST LET ME INTRODUCE

THOSE WHO ARE WITH ME. MAJOR GENERAL ED FRANKLIN IS THE PROGRAM EXECUTIVE OFFICER FOR SEVERAL OF THE AIR FORCE'S MAJOR AIRCRAFT PROGRAMS INCLUDING THE F-22, F-16, F15, AND C-17. GENERAL FRANKLIN IS DIRECTLY RESPONSIBLE TO THE SERVICE ACQUISITION EXECUTIVE FOR THE EXECUTION OF THESE PROGRAMS. THE PROGRAM MANAGERS REPORT TO GENERAL FRANKLIN. HE HAS SERVED IN THIS CAPACITY FOR JUST OVER A YEAR AND A HALF. MAJOR GENERAL PAT CARUANA WORKS ON MY STAFF AND IS RESPONSIBLE FOR SUPPORTING THE PLANNING, PROGRAMMING AND BUDGETING PROCESS FOR THE C-17 AND OTHER MAJOR PROGRAMS. GENERAL CARUANA IS ALSO MY PRIMARY INTERFACE WITH MEMBERS OF YOUR STAFF AND WORKS REQUIREMENTS WITH THE USER. BRIGADIER GENERAL BOB DREWES IS ALSO ON MY STAFF AND HE IS RESPONSIBLE FOR AIR FORCE CONTRACTING POLICIES. BOTH GENERALS CARUANA AND DREWES HAVE BEEN IN THEIR POSITIONS FOR APPROXIMATELY ONE YEAR. MR CHAIRMAN, THAT COMPLETES MY REMARKS.

**ASSISTANT SECRETARY OF THE AIR FORCE
(ACQUISITION)**

PRESENTATION TO



**HOUSE APPROPRIATIONS SUBCOMMITTEE ON DEFENSE
HEARING ON C-17**

SIGNIFICANCE OF AIRLIFT

- THE CHALLENGE
 - CHANGING NATIONAL SECURITY ENVIRONMENT
 - INCREASING BUDGET CONSTRAINTS
- AIR FORCE RESPONSE: GLOBAL REACH - GLOBAL POWER STRATEGY
 - AS FORWARD FORCES DECLINE, AIRLIFT EVEN MORE IN DEMAND
 - AIRLIFT PROVIDES VITAL SPEED AND FLEXIBILITY
- KEY TO SUCCESS: RAPID, FLEXIBLE, COST EFFECTIVE AIRLIFT
- DESERT SHIELD/DESERT STORM EXPERIENCE VALIDATED NEED

SECDEF 21 AUG 1990 -- WE HAVE ENOUGH FORCES IN PLACE TO DEFEND SAUDI ARABIA
(FIRST FAST SEALIFT SHIP ARRIVED 27 AUG 1990)

- MOBILITY REQUIREMENTS STUDY REINFORCED THE VITAL ROLE OF PREPOSITIONING, FAST SEALIFT AND STRATEGIC AIRLIFT
 - AIRLIFT IS THE MOST FLEXIBLE AND RESPONSIVE MOBILITY ELEMENT
 - PRESENT AIRLIFT CAPABILITY IS INSUFFICIENT
- C-17 MEETS THE FUTURE STRATEGIC AIRLIFT REQUIREMENTS
 - C-141 REPLACEMENT CRITICAL TO MAINTAINING CURRENT CAPABILITY
 - C-17 PROVIDES INCREASED CAPABILITY AND RELIABILITY

"FAST SEALIFT IS NO SUBSTITUTE FOR CONTINUED INVESTMENT IN AIRLIFT, PARTICULARLY THE C-17" ADM KELSO

AIRLIFT DEFICIENCIES

- DIMINISHED INTERTHEATER CAPACITY
- OUTSIZE CAPABILITY - INTRATHEATER
- FLEET AGE/OBSCURITY
- OPERATING COSTS
- MANPOWER REQUIREMENTS

AIRCRAFT MODIFICATIONS ALONE WILL NOT
SOLVE DEFICIENCIES - NEED NEW AIRCRAFT

C-17

Flexible Airlift

GLOBAL REACH - GLOBAL POWER AIRLIFT REQUIREMENT

RAPID, FLEXIBLE, COST EFFECTIVE POWER PROJECTION

RAPID

- LARGE PAYLOAD/
INTERCONTINENTAL
RANGE
- DIRECT DELIVERY
(REDUCED CLOSURE
TIME)
- HIGH UTILIZATION
RATE
- INCREASED TONNAGE
DELIVERED PER DAY
(THROUGHPUT)
- MORE RESPONSIVE
INTRATHEATER
MOVEMENT

FLEXIBLE

- OUTSIZE* AIRDROP AND
LAPES
- SMALL/AUSTERE
AIRFIELDS
- COMBAT OFFLOAD
- ALL-WEATHER
CAPABILITY
- RECONFIGURE CARGO
BAY IN-FLIGHT
- ACCURATE, SELF-
CONTAINED
NAVIGATION AIDS

COST EFFECTIVE

- DUAL-ROLE
AIRLIFTER
(STRATEGIC/THEATER)
- REDUCED OPERATING
COSTS
- HIGH RELIABILITY/LOW
MAINTENANCE
- REDUCED MANPOWER
REQUIREMENTS
- ENHANCED
SURVIVABILITY

C-17 : SINGLE AIRLIFTER TO SATISFY ALL REQUIREMENTS

* OUTSIZE CARGO: LIGHT ARMORED VEHICLES, ARMORED GUN SYSTEM, MULTIPLE LAUNCH ROCKET SYSTEM

DESERT SHIELD ANALYSIS (FIRST 45 DAYS)

- CURRENT FLEET DELIVERED 99K TONS IN 45 DAYS
- PROGRAMMED FLEET (WITH C-17s) COULD HAVE
 - DELIVERED MORE TONNAGE (135K TONS OR +36%) OR
 - REDUCED CLOSURE TIME FOR 99K TONS (34 DAYS OR -24%) PLUS
 - DELIVERED 11K TONS WITHIN THEATER (THE EQUIVALENT OF ONE SQUADRON OF 16 C-130 A/C)
- C-5-ONLY FLEET
 - LEAST EFFICIENT (ONLY 90K TONS DELIVERED)
 - WOULD HAVE REQUIRED ACQUISITION OF NEW C-5s

C-17: MORE COMBAT POWER SOONER

AIR MOBILITY COMMAND ESTIMATES:

- C-17s FLYING ROUND THE CLOCK COULD UNLOAD 915 TONS OF CARGO PER DAY AT MOGADISHU, SOMALIA
 - USING CONSERVATIVE ESTIMATE OF 2 C-17s ON THE RAMP AT ONE TIME

AS COMPARED TO:

- 460 TONS FOR C-5s - ONE ON THE RAMP AT ONE TIME
 - RESTRICTED TO ONE C-5 BECAUSE OF LIMITED RAMP SPACE
- 396 TONS FOR C-141s - TWO ON THE RAMP AT ONE TIME
- 579 TONS FOR KC-10s - TWO ON THE RAMP AT ONE TIME

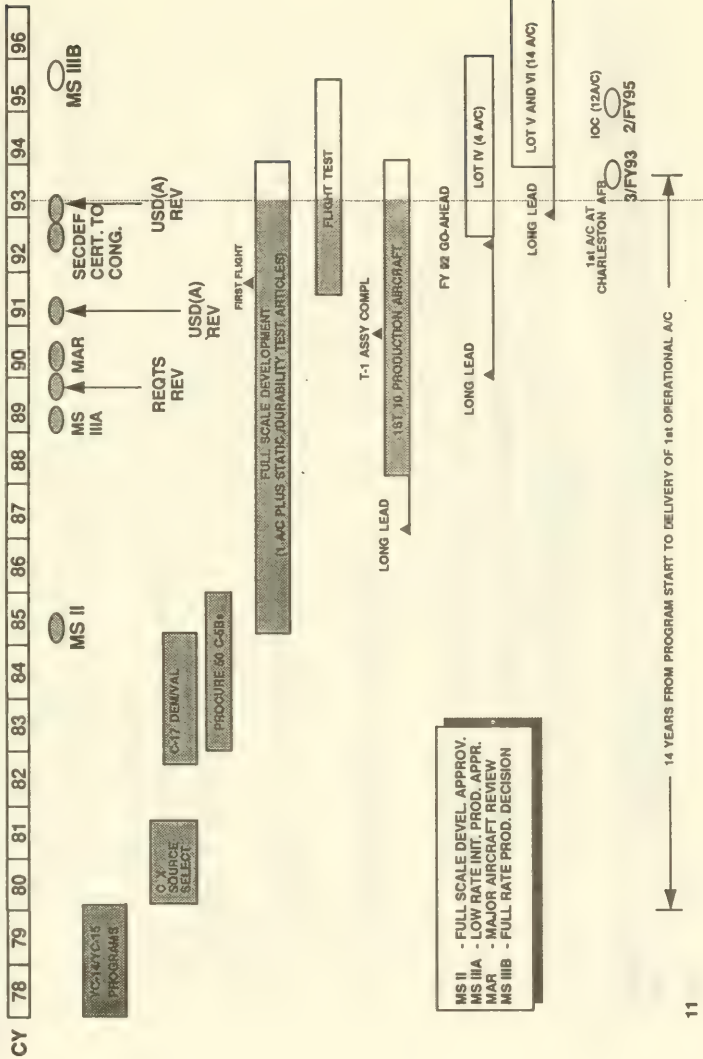
ADDITIONALLY:

- AIRFIELDS AT BALI DOGLE AND BAIDAO COULD BE USED

C-17

Flexible Airlift

C-17 PROGRAM SCHEDULE



ESTIMATE AT COMPLETION (EAC)

- -2108 CONTRACT (FSD, LOTS I AND II) CEILING IS \$6.711B
 - ORIGINAL CONTRACT WAS COMBINED CEILING
 - JUL 92 CONTRACT CHANGE APPLIED SEPARATE CEILING TO EACH PORTION OF CONTRACT
- LOT III CEILING IS \$1.215B
- COSTS OVER CEILING ARE CONTRACTOR'S RESPONSIBILITY
- SPO'S CURRENT EAC *
 - 2108 CONTRACT - \$7.818B
 - LOT III - \$1.073B

* SPO EAC BEING UPDATED TO ACCOUNT FOR FLIGHT TEST PROGRAM EXTENSION AND FIXES FOR THE WING, FLAPS, AND SLATS

C-17

Flexible Airlift

FLIGHT TEST PROGRAM

| 1991 | 1992 | 1993 | 1994 | 1995 |
|--|--|--|--|--|
| A
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T1
15 SEP 91

P1
18 MAY 92

P2
21 JUN 92

P3
7 SEP 92

P4
9 DEC 92

P5
MAR 93

STATIC
OCT 91

DURABILITY
NOV 92

| FLYING QUALITIES/FLUTTER/AVIONICS | PERSONNEL
AIRDROP/CDS | CDS/LVAD
LAPES | MISSION SYSTEMS |
|-----------------------------------|--------------------------|-------------------|-----------------|
|-----------------------------------|--------------------------|-------------------|-----------------|

| MISSION/AVIONICS
SYSTEMS | 80%
LOADS | MISSION
SYSTEMS | 100%
LOADS | UNPV
RWY | MISSION SYSTEMS |
|-----------------------------|--------------|--------------------|---------------|-------------|-----------------|
|-----------------------------|--------------|--------------------|---------------|-------------|-----------------|

| AIRCRAFT PERFORMANCE
PROP SYSTEMS/AFCS | TAKEOFF/LDG
PERFORMANCE | AVIONICS
TESTING |
|---|----------------------------|---------------------|
|---|----------------------------|---------------------|

| SYS
TEST | CLIMATIC
HANGER | WORK
POW | SYS
TEST | ARCTIC/
ADV AW | SYS
TEST | HOT TROPIC
AW |
|-------------|--------------------|-------------|-------------|-------------------|-------------|------------------|
|-------------|--------------------|-------------|-------------|-------------------|-------------|------------------|

| P
F
C
M | CLIMATIC
LOADING | AMC
TRAINING | TMP/INVG | WIND
MCD | DEDICATED
IOT&E |
|------------------|---------------------|-----------------|----------|-------------|--------------------|
|------------------|---------------------|-----------------|----------|-------------|--------------------|

| P
C
A | EMR/
LIGHTNING | AVIONICS TESTING |
|-------------|-------------------|------------------|
|-------------|-------------------|------------------|

DELAY CAUSED BY
SATELLITE COMM
FAILURE

| SET UP/
DEFERRED
WORK | LIMIT
LOADS | ULTIMATE LOAD TESTS
REQ'D FOR FLT TEST | FAILURE
TESTS |
|-----------------------------|----------------|---|------------------|
|-----------------------------|----------------|---|------------------|

MOVE TO TEST
MAY 92

FIRST LIFE (30,000 HRS) COMPLETE MAY 94
SECOND LIFE (60,000 HRS) COMPLETE IN NOV 95

FLIGHT TEST SUMMARY

AS OF 19 MAR 93

FLIGHT TEST HOURS:

| Aircraft | Delivery Date | Missions | Duration | Date | Total Hours |
|----------|---------------|----------|----------|-----------|-------------|
| T-1 | 15 Sep 91 | 151 | 5.1 | 19 Mar 93 | 518.2 |
| P-1 | 18 May 92 | 61 | 1.7 | 12 Mar 93 | 161.5 |
| P-2 | 21 Jun 92 | 76 | 6.2 | 19 Mar 93 | 324.5 |
| P-3 | 7 Sep 92 | 13 | 4.2 | 31 Oct 92 | 36.9* |
| P-4 | 9 Dec 92 | 15 | 4.1 | 23 Feb 93 | 63.4 |
| P-5 | 12 Mar 93 | 5 | 4.3 | 12 Mar 93 | 19.1* |
| Total | | 321 | | | 1123.6 |

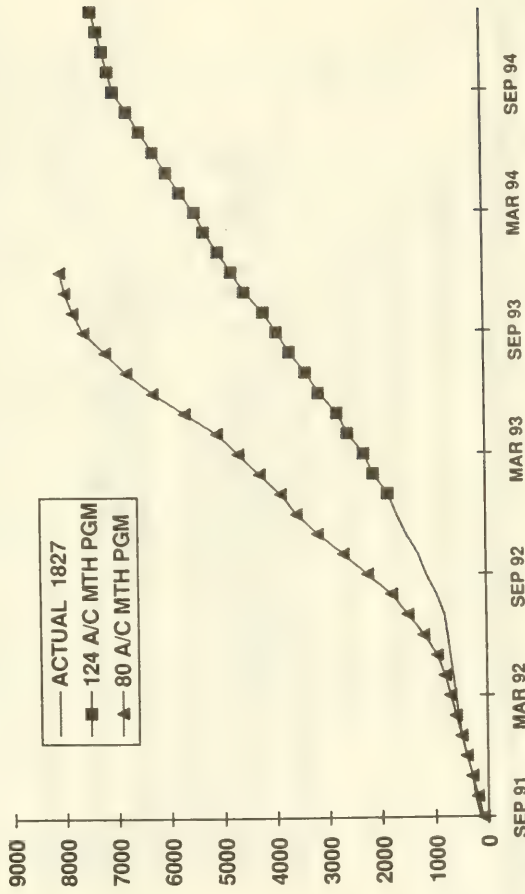
*P-3 currently undergoing tests in environmental hanger at Eglin AFB. Projected completion Jun 93. P-3 undergoing EMRLighting testing at Pax River NAS. Projected completion Jul 93.

MAJOR ACCOMPLISHMENTS:

- FLYING QUALITIES TO 41,500 FT AND .87 MACH
- 2,430 FT LANDING ROLL AT 350,000 LB LANDING WEIGHT
- OPENING OF CARGO DOOR IN FLIGHT
- ENGINE SHUTDOWNS AND RESTARTS IN FLIGHT
- AIR REFUELING WITH KC-135, KC-10
- TURN AROUND ON 90-FOOT-WIDE RUNWAY
- FOURTEEN WORLD RECORDS FOR WEIGHT-TO-ALTITUDE
- BUNDLE AND DUMMY DROPS
- BACK-UP CAPABILITY AND GROUND MANEUVERABILITY
- TAKEOFF WEIGHT OF 582,500 LBS
- TAKEOFF IN 1200 FT AT 350,000 LBS
- LANDING WEIGHT OF 535,500 LBS
- 8.3 HOUR MISSION DURATION
- LANDING ON AN UNIMPROVED SURFACE
- NIGHT LANDINGS/NIGHT FLIGHTS
- FOUR-AIRCRAFT FORMATION FLIGHT
- FLIGHT AND LANDING WITH M1A1 TANK

C-17 FLIGHT TEST PROGRAM CUMULATIVE FTIS TEST POINTS

C-17
Flexible Air/ft



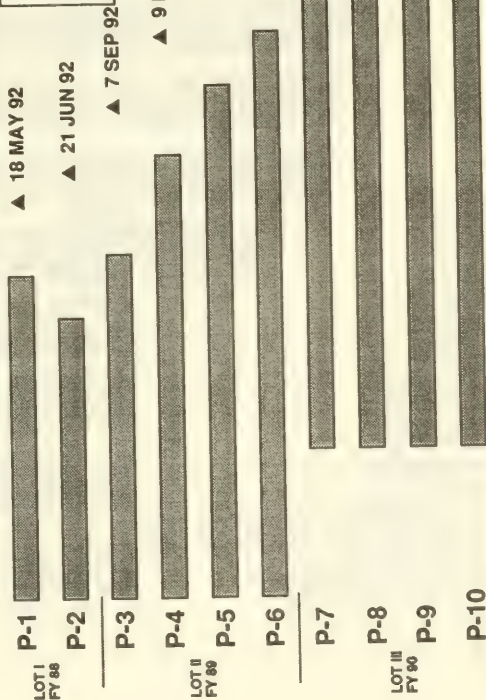
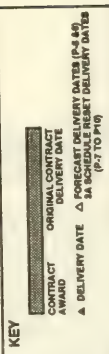
PRODUCTION TRENDS

C-17

Flexible Airlift

C-17 PRODUCTION SCHEDULE

| CY 1991 | | | | | | | | | | | | CY 1992 | | | | | | | | | | | | CY 1993 | | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|---|---------|---|---|---|---|---|---|---|---|---|---|---|---------|---|---|---|---|---|---|---|---|---|---|---|
| J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |

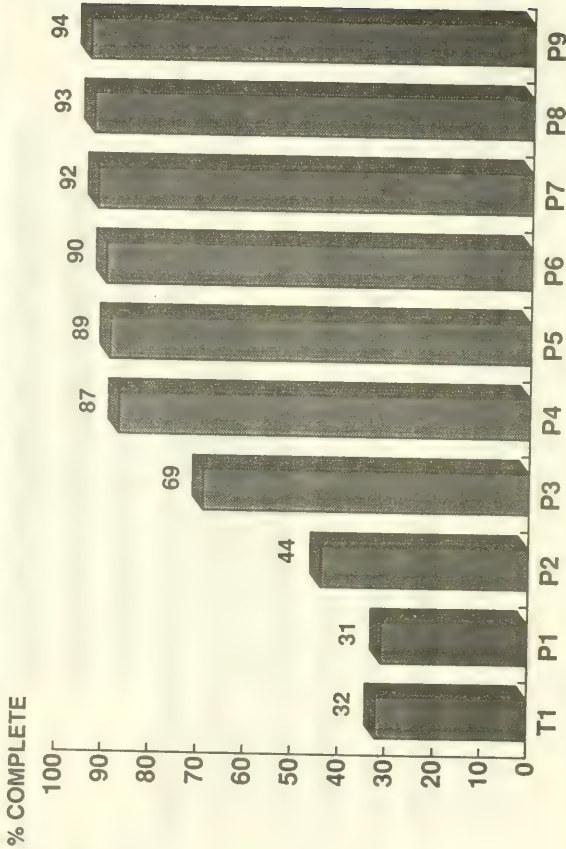


NOTE: LOT IV (FY 92, 4 AIRCRAFT) AND LOT V (FY 93, 6 AIRCRAFT) ARE CURRENTLY UNDERWAY AS LONG LEAD CONTRACT AIRCRAFT. CONTRACT DELIVERY DATES ARE YET TO BE DEFINITIZED FOR LOTS IV AND V AIRCRAFT.

C-17 IMPROVEMENTS TO IN-POSITION WORK

Flexible Airlift

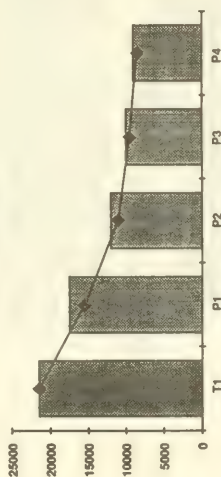
% COMPLETE OF PLANNED WORK AS AIRCRAFT REACH MAJOR JOIN



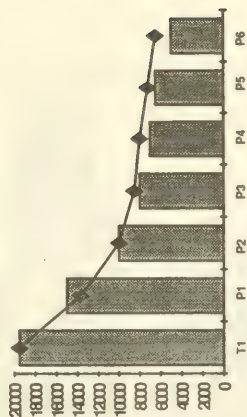
REWORK & REPAIR COST TRENDS

COSTS (000)

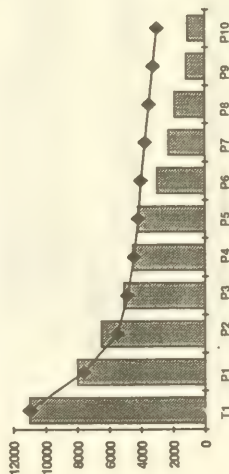
AT COMPLETION



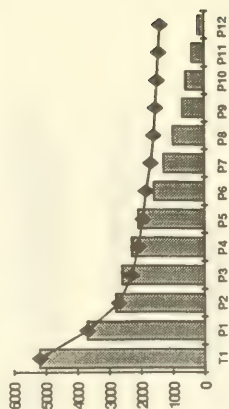
AT 75,000 EARNED HOURS



AT 50,000 EARNED HOURS



AT 25,000 EARNED HOURS



- C-17 CONTRACTS PROVIDE EXTENSIVE WARRANTIES
 - FLEET RELIABILITY, MAINTAINABILITY, AND AVAILABILITY (RM&A)
 - IF RM&A VALUES NOT MET, CONTRACTOR MODIFIES DESIGN AND RETROFITS AIRCRAFT AT NO INCREASE IN CONTRACT PRICE
 - CORRECTION OF DEFICIENCIES
 - COVERS DEFECTS IN DESIGN, MATERIAL, OR WORKMANSHIP FOR 180 DAYS AFTER DELIVERY AT NO INCREASE IN CONTRACT PRICE
 - SERVICE LIFE POLICY
 - CONTRACTOR WILL DESIGN CORRECTIONS AND PROVIDE PARTS AT PRORATED PRICE FOR REPETITIVE TYPE FAILURE OF AIRCRAFT STRUCTURAL COMPONENTS AND LANDING GEAR FOR 10 YEARS OR 10,000 HOURS (OR 20,000 LANDINGS FOR LANDING GEAR)
 - DURABILITY TEST
 - CONTRACTOR WILL MODIFY DESIGN/PROCESSES AND RETROFIT DELIVERED AIRCRAFT AT NO INCREASE IN CONTRACT PRICE FOR DEFECTS IDENTIFIED DURING

C-17
Flexible Airlift

IMPORTANT

PROGRAM CHALLENGES

STATIC TEST ARTICLE WING FAILURE

- STATIC ARTICLE SUFFERED WING SKIN PANEL FRACTURES AND BUCKLING ON BOTH WINGS AT APPROXIMATELY 130% LIMIT LOAD (1 OCT 92)
- EXECUTIVE INDEPENDENT REVIEW TEAM (EIRT) STUDIED INCIDENT AND BRIEFED FINAL REPORT TO ACTING SECAF 26 FEB 92.
- AIR FORCE WILL INCORPORATE FULL STRUCTURAL DESIGN FIX
 - PROVIDES FULL DESIGN STRENGTH
- EFFECT ON PROGRAM:
 - STRUCTURAL WEIGHT INCREASE (600 - 800 LBS)
 - ACCOUNTED FOR IN CURRENT RANGE/PAYLOAD ESTIMATES
 - FOUR TO SIX MONTH DELAY ANTICIPATED BEFORE FLIGHTS AT 100% LIMIT LOAD CAN BEGIN
- STATIC TESTING ESTIMATED TO RESUME IN JUL 93

RANGE/PAYLOAD PERFORMANCE

- PERFORMANCE TESTING ON P-2 INDICATES RANGE/PAYLOAD DEFICIENCY
 - SPECIFICATION CALLS FOR 2400 NM RANGE WITH 160,000 LB PAYLOAD
 - APPROXIMATELY 9775 LB. (6.1%) PAYLOAD DEFICIENCY AT 2400 NM RANGE.
 - TAKES INTO ACCOUNT ADDED WEIGHT FOR CORRECTING WING/SLAT/FLAPS DEFICIENCIES
- REASONS FOR SHORTFALL
 - DESIGN WEIGHT GROWTH
 - THRUST SPECIFIC FUEL CONSUMPTION (TSFC) HIGHER THAN EXPECTED
 - BASELINE DRAG INCREASE
- LOW RISK OPTIONS BEING IMPLEMENTED
 - WEIGHT AND DRAG REDUCTIONS
 - IMPROVE ENGINE EFFICIENCY - TSFC
 - INCREASE MAX. OPERATING WEIGHT TO ALLOW ADDITIONAL FUEL
 - REDUCES PAYLOAD SHORTFALL TO 1.3%

EVEN WITHOUT IMPROVEMENTS, C-17 REMAINS THE MOST COST
EFFECTIVE ALTERNATIVE

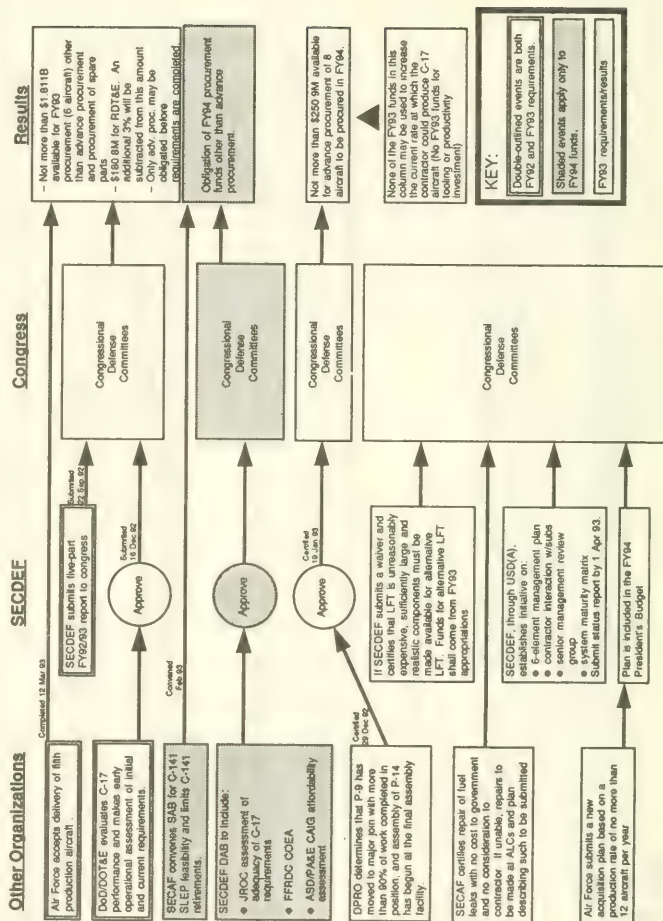
WING FASTENERS

- DOD IG INVESTIGATED C-17 FASTENER/RIVET PROBLEMS AFTER CONGRESSIONAL TESTIMONY BY FORMER MDA EMPLOYEES (NOV 91)
- DRAFT IG REPORT (14 SEP 92) FOCUSED ON TWO AREAS
 - RIVETS EXPANDED BEYOND UPPER LIMIT - REDUCING DURABILITY
 - TWO-PIECE FASTENERS IMPROPERLY INSTALLED WITHOUT QUALITY ASSURANCE (QA) PROCEDURES
- AIR FORCE NONCONCURRED
 - NO SPECIFIED LIMIT ON EXPANSION IN ALUMINUM WHEN RIVETED TO HARDER ALLOY ALUMINUM - SUPPORTED BY STRESS CORROSION TESTS ON MD-11
 - 100% TWO-PIECE FASTENERS INSPECTED AND DPRO SURVEILLANCE ASSURES COMPLIANCE
- FINAL REPORT PUBLISHED 1 MAR 93
 - RECOMMENDS RIVET UPPER EXPANSION LIMIT BE DEVELOPED
- ADDITIONAL TESTING ON OVEREXPANDED RIVETS SHOWED NO DEGRADATION IN FATIGUE PERFORMANCE
- REPORT MAINTAINS PREVIOUS RECOMMENDATIONS REGARDLESS OF AF OR DLA COMMENTS

DOD IG REPORT

- DOD IG HAS CHARGED AIR FORCE WITH ANTI-DEFICIENCY VIOLATIONS TO AID McDONNELL-DOUGLAS CASH FLOW
- REPORT CITES
 - IMPROPER PROGRESS PAYMENTS AND EARLY ACCEPTANCE OF C-17 AIRCRAFT
 - IMPROPER USE OF PROCUREMENT FUNDS TO COVER RDT&E EXPENSES
 - REPORT RECOMMENDS AIR FORCE TAKE DISCIPLINARY ACTION AGAINST RESPONSIBLE AIR FORCE OFFICIALS
- AIR FORCE REVIEWING ALLEGATIONS

C-17 FY93 CONGRESSIONAL RESTRICTIONS



C-17

2010-2011

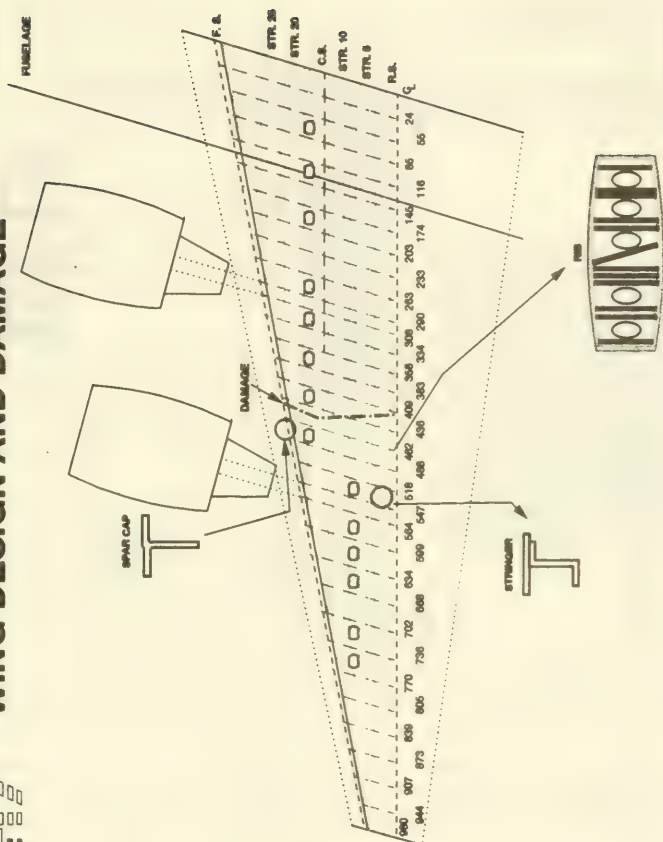
IMPO

SUMMARY

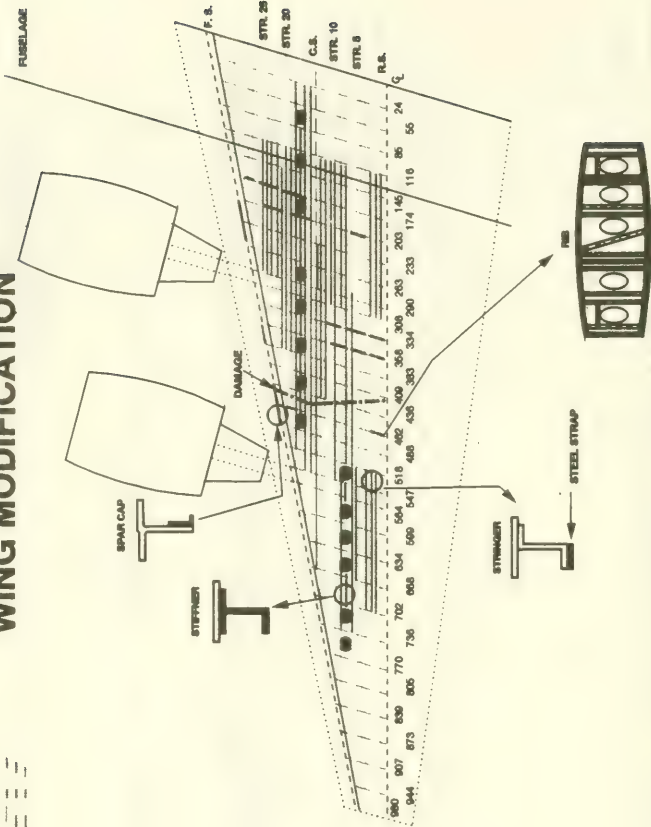
C-17 SUMMARY

- REQUIREMENT FOR C-17 CONTINUES TO BE VALID
- C-17 CAPABILITIES ARE THE MOST COST EFFECTIVE ANSWER TO THE DEFICIENCIES OF OUR CURRENT AIRLIFT
- TECHNICAL CHALLENGES ARE MANAGEABLE
- COMPREHENSIVE REVIEW BY USD(A), 12 JAN 93, REAFFIRMED THE AIR FORCE CONCLUSIONS THAT THE PROGRAM IS ON TRACK

WING DESIGN AND DAMAGE



WING MODIFICATION





Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

MAJOR GENERAL PATRICK P. CARUANA

Major General Patrick P. Caruana is director of long-range power projection, special operations forces airlift and training programs, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.

General Caruana was born Nov. 11, 1939, in St. Louis, where he graduated from St. Mary's School in 1957. He earned a bachelor of science degree in engineering from the U.S. Air Force Academy in 1963 and a master of science degree in mathematics from Texas A&M University in 1972. The general completed Squadron Officer School in 1968, Air Command and Staff College in 1977, and the Industrial College of the Armed Forces in 1984.

He began his military career by enlisting in the Air Force Reserve in April 1957 as a C-119 crew chief. In June 1959 he received an Air Force Academy appointment, and graduated in June 1963. The general attended undergraduate pilot training at Vance Air Force Base, Okla., and received wings in September 1964. He then was assigned to Castle Air Force Base, Calif., for KC-135 combat crew training. In March 1965 he was transferred to the 916th Air Refueling Squadron, Travis Air Force Base, Calif., where he served as co-pilot, and then aircraft commander.



In November 1969 General Caruana reported to Lockbourne Air Force Base, Ohio, for C-123 training. He then was assigned as a pilot and senior command post controller with the 315th Tactical Airlift Wing, Phan Rang Air Base, South Vietnam. From December 1970 to August 1972 the general attended Texas A&M University. From there he was assigned to the department of mathematical sciences, Air Force Academy, as an assistant professor and deputy basic division chief. He left in June 1976 to attend Air Command and Staff College.

The general was transferred to the 920th Air Refueling Squadron, Wurtsmith Air Force Base, Mich., in July 1977, and first served as an aircraft commander, then as squadron operations officer. From September 1980 to June 1982 he commanded the 11th Air Refueling Squadron, Altus Air Force Base, Okla. He next was assigned as chief, Applications Division, Tanker Directorate, and deputy chief of staff for operations, Headquarters Strategic Air Command, Offutt Air Force Base, Neb., until August 1983.

After completing the Industrial College of the Armed Forces in June 1984, General Caruana was assigned to the 376th Strategic Wing, Kadena Air Base, Japan, as vice commander, then as commander. He was transferred to McConnell Air Force Base, Kan., in April 1986 to command the 384th Air Refueling Wing, the first fully operational KC-135R unit. He was responsible for overseeing the wing's transition to the B-1B bomber mission. In July 1987 he became deputy director of strategic, special operational forces and airlift programs, Office of the Assistant Secretary of the Air Force for Acquisition.

In September 1989 he became commander, 42nd Air Division, Strategic Air Command, Grand Forks Air Force Base, N.D. From August 1990 until March 1991 General Caruana deployed to Saudi Arabia as director of strategic forces, U.S. Central Air Forces. As a planner of the Desert Storm air campaign, he was responsible for

(Current as of December 1992)

OVER

the largest air refueling fleet ever assembled and oversaw all U.S. Air Force refueling, B-52 bombing and reconnaissance operations. Dual-hatted as commander, 17th Air Division (Provisional), he commanded 12 wings of tanker, bomber and reconnaissance aircraft in six nations and the Indian Ocean area.

General Caruana returned to Grand Forks Air Force Base from the Persian Gulf and presided over the inactivation of the 42nd Air Division. In July 1991 he moved to SAC headquarters as assistant deputy chief of staff for operations. During this historic time for SAC with the stand-down of day-to-day aircraft alert operations, he participated in the process to posture SAC for deactivation and the total restructuring of the Air Force. He assumed his current position in January 1992.

The general is a command pilot with more than 5,000 flying hours, including 560 combat hours in the C-123 and KC-135A. His military awards and decorations include the Legion of Merit with two oak leaf clusters, Distinguished Flying Cross, Meritorious Service Medal with two oak leaf clusters, Air Medal with four oak leaf clusters, Air Force Commendation Medal and Vietnam Service Medal with seven service stars.

He was promoted to major general July 2, 1992, with same date of rank.

General Caruana is married to the former Lauraine Vatamaniuck of La Fleche, Saskatchewan, Canada. They have two children, Hillary and Joshua.



Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

MAJOR GENERAL CHARLES E. FRANKLIN

Major General Charles E. Franklin is program executive officer for tactical and airlift programs, Air Force Executive Office Organization, Washington, D.C. He is responsible for the planning and execution of all major tactical and airlift programs.

General Franklin was born July 17, 1938, in Birmingham, Ala. He attended Auburn University, and earned a bachelor's degree in mechanical engineering from Georgia Institute of Technology in 1961 and a master's degree in aeronautical-mechanical engineering from the Air Force Institute of Technology in 1967. He completed Squadron Officer School in 1972 and National War College in 1983.

The general served as an enlisted member of the Air National Guard from July 1955 to November 1961, when he entered Officer Training School, Lackland Air Force Base, Texas. Upon his commissioning in February 1962, he was assigned as a project officer and, later, as a project engineer, Engine Research Branch, Air Force Rocket Propulsion Laboratory, Edwards Air Force Base, Calif., until June 1965. He completed graduate studies at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, in July 1967. General Franklin then served as a nuclear research officer and, later, as reactor engineer with the Engine Branch, Space Nuclear Systems Division, U.S. Atomic Energy Commission, Germantown, Md.



In August 1971 he was assigned to Wright-Patterson Air Force Base and served successively as deputy director of the Ramjet and Laser Division, Air Force Aero Propulsion Laboratory, propulsion engineer with the B-1 program and program manager for the Advanced Strategic Air Launch Missile Flight Test Program. General Franklin served as an inspector with the Office of the Inspector General, Air Force Systems Command, Andrews Air Force Base, Md., from April 1976 to June 1978. He was assigned to Wright-Patterson as deputy chief of projects, then as chief of products. He later became deputy program director in the A-10 program.

After completing National War College in June 1983, the general was assigned as deputy commander for tactical systems, Headquarters Electronic Systems Division, Hanscom Air Force Base, Mass. He became deputy commander for the Joint Surveillance Target Attack Radar System in December 1985. In July 1986 he was assigned to Griffiss Air Force Base, N.Y., as commander of Rome Air Development Center. In July 1988 he was assigned to Aeronautical Systems Division, Eglin Air Force Base, Fla., as system program director for the advanced medium range air-to-air missile. He assumed his present position in August 1991.

The general's military awards and decorations include the Defense Distinguished Service Medal, Legion of Merit with oak leaf cluster, Meritorious Service Medal with oak leaf cluster, and Air Force Commendation Medal.

He was promoted to major general Aug. 1, 1991, with same date of rank.

General Franklin is married to the former Linda Hrbacek of Oklahoma City. They have three daughters: Kimberly Anne, Heather Lynne and Denise Marie.

(Current as of March 1992)



Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

BRIGADIER GENERAL ROBERT W. DREWES

Brigadier General Robert W. Drewes is deputy assistant secretary for contracting, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C. He is responsible for all aspects of contracting for the acquisition of weapon systems, logistics support, materiel and services for the Department of the Air Force.

General Drewes was born April 24, 1942, in Berwyn, Ill., and graduated from Pelham (N.Y.) Memorial High School in 1960. He earned a bachelor of arts degree from Colby College in 1964 and a master's degree in business administration from the Harvard Business School in 1970. The general completed Squadron Officer School in 1972, Air Command and Staff College as a distinguished graduate in 1977, Air War College in 1979, and the Industrial College of the Armed Forces in 1985.

In June 1964, after completing Colby College's Reserve Officer Training Corps program as a distinguished graduate, he was commissioned as a second lieutenant. He then was assigned to Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, as a contract negotiator and project manager for communication and navigation equipment, until May 1968.

General Drewes graduated from Harvard University in June 1970, and then was assigned to Headquarters Air Force Systems Command (AFSC), Andrews Air Force Base, Md., as a procurement management staff officer. From April 1973 until July 1976 he was commander of the Defense Contract Administration Services Office, Bendix Navigation and Control Division, Teterboro, N.J.

Upon completion of Air Command and Staff College in May 1977, he was transferred to Headquarters U.S. Air Force, Washington, D.C., as a contract management staff officer. In July 1980 the general became executive officer to the assistant secretary of the Air Force for research, development and logistics, then became the military assistant in the same office. In September 1982 he was assigned to the White House as a military adviser in the president's executive office.

After graduation from the Industrial College of the Armed Forces in June 1985, General Drewes was assigned to Electronic Systems Division, Hanscom Air Force Base, Mass. From July 1985 until June 1986 he was director for support systems contracting, and then became director of tactical systems contracting. In July 1986 the general was assigned responsibility for all contracting in that division. In April 1988 he became vice commander, Contract Management Division, Kirtland Air Force Base, N.M. In September 1989 he became the deputy chief of staff for contracting, AFSC headquarters. He assumed his current position in January 1992.

The general's military awards and decorations include the Defense Superior Service Medal, Legion of Merit with oak leaf cluster, Meritorious Service Medal with oak leaf cluster, and Joint Service Commendation Medal.

He was promoted to brigadier general April 1, 1990, with same date of rank.

General Drewes is married to the former Roberta Joyce Gilson of Attleboro, Mass. They have three children: Peter, Kathryn and Jennifer.



SUMMARY OF C-17 PROGRAM

Mr. MURTHA. Let me start out by asking where we are and give me a summary of the program.

General JAQUISH. The C-17 program had a planned contract award date to get started in 1981. That was delayed due to some studies that were ongoing at that time so that the contract was signed in July 1982. Immediately thereafter, because of an existing deficiency in our lift capability, almost all funds were taken off the C-17 program and applied to procuring. I think, an additional 50 C-5s. So finally in 1985, we signed a contract which is currently known as the 2108 contract, and its contents are very unique in the sense that it includes not only the development contract to do the full-scale engineering development of the airplane, but also includes Lot 1 and Lot 2, the first 6 production airplanes.

So we got started in 1985. The program was restructured in 1988 as a result of the unavailability of funds in the previous years. So when you go back now and baseline the program and say "Where was the program baselined from our perspective," it was baselined in 1988 and that is where we ought to be measured from.

You asked for a summary and I would summarize it in this way: First of all, when we signed the contract in 1985, I find it very interesting that there were no significant changes in the terms and conditions of that contract that McDonnell Douglas signed in 1985 from the contract we intended to start in 1981. It is a fixed-price development contract that the contractor we currently estimate is losing \$1.1 billion on. A fixed-price contract and we anticipate that that will have some additional growth. It could grow another \$200 million to \$300 million so that he could end up on a situation where he will lose on this fixed-price contract \$1.3 billion to \$1.4 billion.

From the onset—

FIXED PRICE R&D CONTRACT

Mr. McDADE. If we can go back, because corporate memory is important for us. You are talking about executing what was then a fixed-price R&D contract.

General JAQUISH. Yes, sir, including Lots 1 and 2 for production.

Mr. McDADE. We have since outlawed fixed-price R&D contracts because we have decided that R&D is not the place to try to fix a price. R&D is where you try to work through problems. If we were to look at that contract through today's eyes, we wouldn't sign a fixed-price or ask anybody to sign up to a R&D fixed-price contract of that nature?

General JAQUISH. That is correct. DOD established a policy starting 1989 and 1990 to never do a fixed-price development contract where there is perceived to be any risk. We do that on a cost-type basis with consideration that the contractor ought to make a fair profit during this period of time. The only contract the Air Force

has that fits into that of any great size is the ATF program. That is a cost-type contract.

There are significant differences between a fixed-price contract and a cost-type contract. In a cost-type environment, you are simply contracting for a level of effort.

In a fixed-price contract, it was not uncharacteristic for a company to bid in very, very low, thinking that when they got into production particularly at higher rates they would recoup their losses, and that was not blind to the government. The government was a part of that and we obviously knew that these companies were buying in very low.

Mr. McDADE. My memory is that we had so many unfortunate experiences using that kind of policy that this Committee banned them. We said this is not good public policy.

General JAQUISH. Correct. So when you talk about the problem children in acquisition today, ones that your committee has in many cases supported us through C-17, ACM, et cetera, tri-service standoff attack missile, they are based on fixed-price contracts and as you can appreciate when a contractor is into \$1.1 billion and more of his money, it reduces his flexibility to respond and take the kind of management actions necessary.

Mr. McDADE. Thank you.

MCDONNELL DOUGLAS MANAGEMENT PROBLEMS

General JAQUISH. Right from the onset, it is our assessment, and I think this has been consistent in the testimony before this committee for a period of years that Douglas was not in good position from a management perspective to execute this contract.

Mr. MURTHA. When did you recognize that?

General JAQUISH. As best I can tell going back, it was I think clear in the records I have gone through back to 1988 that in 1988, people started seeing the warning signs coming out of Douglas that they did not have the right management team in there.

I have gone back through our last three years' testimony with this Committee and we have discussed this all along and frankly they were not in a position when they started out. Not only that, they then did not take the appropriate management actions early enough in this program to correct this problem.

As time went on then, and they started going in the hole, losing money on this contract, and their business base lagged because of other things going on within industry and the Defense Department, they lacked financial capability to do the kind of things that needed to be done. Now, today—and we are more than willing and want you to challenge us on these facts—for the very first time in this program, I would tell you that the playing field is now level.

First off, there is no disagreement between the Air Force and USD(A), the Under Secretary of Defense for Acquisition, as to where this program is. We have good factual data that will tell you that Douglas, the Douglas portion of this, the people that are going to execute this contract have, in fact in the last year or so, changed out a lot of people within this management structure. In fact, they have changed out all but three of their key people within their management structure and have gone throughout McDonnell

Douglas to get qualified people to execute this program and outside.

In addition, we can show you where there are significant——

Mr. MURTHA. Are you talking about the development or the production program?

General JAQUISH. Both. The three people that were not replaced were the program manager, head of manufacturing, who was new——

General FRANKLIN. Brought in by former Secretary Aldridge when he did a production review effort back in 1991. The third is head of the support effort which is former Air Force General Tom Ryan.

General JAQUISH. So we in the Air Force, in the office of the Under Secretary for Acquisition—USD(A)—and the DPRO looked at the management team within Douglas today and we will tell you, and we think we can back it up with hard facts, that they have taken the right management actions.

Mr. MURTHA. What took us so long? I remember questioning, somebody who said it was just a software problem. Probably the first time I heard that and then I heard there were only 35 people working on it, that was Honeywell and they fired Honeywell and put in General Electric. The program has been going on for a number of years. Why did it take so long to recognize what the problem was? Were there so many other programs going on at the same time or what was the problem?

General JAQUISH. I think there was recognition of the management problems within Douglas from the onset, and I think the Air Force and USD(A) and the DPRO, after we established that sort of an operation, had been working with that company over a period of years to make the fundamental changes.

I can remember even in the time that I have associated with this program that there were other changes prior, but the people they brought in were not qualified. They did not bring in people from throughout the industry, nor did they source key people from the rest of McDonnell Douglas.

This is not a program that is new to us. In the testimony for the last few years, we have talked about the need to make management changes and the fact that we had been told and expected them to do it, but today we are here to tell you that the Douglas team—not at the corporate level, I think that is an interesting question—they are in a position with the right team under the right supervision to get the job done and they are committed to get the job done.

Mr. MURTHA. You are talking about the C-17 program exclusively, not the overall management of McDonnell Douglas? You are talking about the people now in place overseeing the C-17 program?

General JAQUISH. Yes, sir. I am saying that not only is that management in place at that level, but we have seen and have visible evidence that we would like to share with you that the quality trends on the production line are going in the right direction and we think that is significant.

C-17 FLIGHT TEST RESTRUCTURE

In addition to that, we have restructured the flight test program and for the first time we think that we have a flight test program that is going to be complete when we say it is going to be complete, which happens to be January of 1995.

We have added additional test months, additional airplanes in there. We have reviewed the entire flight test process because they were lagging behind in terms of accomplishments and again I would say USD(A) agrees that we have now for the first time an executable flight test program.

C-17 PROGRAM OVERHAUL

In addition, for the first time as a result of our resetting the schedules, everybody agrees we have an executable schedule.

Finally, while we have had a lot of technical problems, not necessarily untypical in development programs, some of them have been obviously very dramatic when you talk about wing failures, but everybody believes, including the Under Secretary, that we have the right technical fixes in hand.

The key issue becomes McDonnell Douglas. Specifically Douglas must execute this program and the government must continue to manage the program properly to ensure that execution and we need some stable funding in here to allow them to execute it and the final key is we need corporate commitment from McDonnell Douglas that they will ensure that Douglas, that team that we think is in place to execute the program has what it takes to execute this program.

We are here to tell you that this is not the same old tune as in the past.

Next year there is not going to be somebody sitting in front of you, me or anybody else going through this litany of problems and saying it is all going to get better without one or two things occurring. One, because we believe we have absolutely leveled this playing field for Douglas that if they fail to perform and we have identified the key performance factors, we will look at this contract for termination for default. We will issue cure notices, show cause and take stiff action because there is no reason why they should not be able to execute this.

If it is a matter of fact that the government, through mismanagement has not facilitated this program, there will be a new PEO and program director. We are laying down a marker that says we are ready now. It is a level playing field. Support us and we have physical evidence, good solid physical evidence to tell you this program is going to go.

Mr. YOUNG. Mr. Chairman, would you yield?

DOD INSPECTOR GENERAL REPORT

Mr. MURTHA. Let me ask one question. The contractor stopped work, the staff reminds me, in December of 1992 due to claims concerning progress payments—are those claims settled? Have these issues been resolved? Is there any evidence of illegal activity concerning the actions of government personnel?

General JAQUISH. First, with regard to inappropriate behavior. The DOD I.G. has issued a report that is under review now that alleges that five named individuals in the Air Force, none of whom are present here today, have been involved in some wrongdoing, not criminal, but wrongdoing in terms of that program. That is currently being reviewed by an independent review team to provide recommendations to the Secretary of the Air Force. With regard to claims, and General Drewes will answer this specifically, we have received some number of claims and we have rejected some number and Bob will run that through for you.

In addition, there is a lot of posturing in the paper about a big claim coming in on the C-17. This has been around for a year. Last year when Mr. Welch and I were here, there was a discussion about potential for a billion dollar claim against the government for delay and disruption. Frankly, I don't know what to tell you about that. We have heard about it. It has been there for a year, but no one has ever filed any claim with us. So I don't know what McDonnell Douglas is doing in that regard.

General DREWES. Sir, as of today, we have received eleven claims from the contractor for a value he has put on them of about \$345 million. We have reviewed and disapproved seven of those claims. We have—and the contractor, I think, is still appealing to the Armed Services Board of Contract Appeals, which could take some years—the four remaining claims. We have no intention of resolving, settling with the contractor because we have heard as you have, that he is planning to submit a very large, a single claim of a billion dollars plus that he called delay and disruption and we have no insight as to what that is supposed to cover and we are not about to settle any claims, agree to anything until we see what this large claim is.

I will further say that that claim is going to take approximately three to seven years to resolve. It will probably wind up in the courts. We know of no basis for it. We suspect part of it is going to be the type of contract. But he is going to have to show how that contract still couldn't have succeeded if he had put all his resources into it from the beginning.

2108 CONTRACT CLAIM

Mr. MURTHA. General Jaquish, how can you say that the contractor understands, you understand and then they are going to come in with a claim. Doesn't that disrupt the relationship right away of the ongoing program?

General JAQUISH. Well, it—

General DREWES. No, sir. It isn't going to. This claim concerns the 2108 contract, as far as we can figure. We will probably have people who will be working on that who will be assigned apart from the ongoing effort. It does not affect our negotiations on anything in the future. It is something that is going to take many lawyers, a long time to settle, but it is not going to affect our decisions.

General JAQUISH. The claim is against the FSD contract, which is 95 percent complete at this point. So we are into production now. As I mentioned before, we have been hearing about this large claim for some period of time. We have told McDonnell Douglas

that we would desire them if they have a claim to file claims incrementally, so that we can deal with these things, but we continue to hear this noise about the billion dollar claim and I don't know if it is ever going to come or if it is a billion dollars or what it is. We have no insight.

Mr. MURTHA. Mr. McDade.

RDT&E BUDGET REQUEST

Mr. MCDADE. Let's, if I may, again suggest that we just begin to review a little bit of the program status. What is the full amount of R&D requested in the budget for 1994?

General JAQUISH. Well——

Mr. MCDADE. I want to get the figure and the remaining R&D activities to be funded within that fiscal year account. What are they?

General JAQUISH. With one caveat. The President's Budget for 1994, as you know, has not been delivered to Congress. You need to take that into consideration——

Mr. MCDADE. You will have to put an asterisk over every number.

General JAQUISH. As we understand it, the request will be for 187.9 million in R&D, and that will fall off fairly rapidly to half of that in 1994 or 1995 and then fall off again very dramatically. So if I do my addition quickly here, through 1999, I see 300, \$320 million total R&D.

Mr. MCDADE. Can you then summarize for us what the R&D activities that are being funded are? What is left to get through here?

General JAQUISH. I will turn that over to General Franklin, who can answer that in detail.

General FRANKLIN. Part of that is government cost for test and evaluation, part is particular support equipment where we have to develop support equipment, part is for simulators, for training devices. There is also some program support for the system program office. There is data, some site activation costs in that and there is some management reserve——

Mr. MCDADE. Let me interrupt you because it is brought to my attention that last year when we got this number, the number before the Committee was given as \$96,200,000 to complete it, all the R&D. The figure today is about double that, \$189,960,000 is based on last year's number we got.

General JAQUISH. Last year our request was for \$211 million. We got appropriated \$180 million, so we were short some \$31 or \$32 million there. Then in the outyears, 1994 and 1995, there was another \$95 million.

Mr. MCDADE. There is an awful lot of cost growth in the system there?

General JAQUISH. There is a growth based on that calculation from 130 to \$300 million, about a \$170 million increase in R&D costs. But those costs are associated with the expanded flight test program and other figures——

Mr. MCDADE. We discussed this being one of those things we wouldn't do in a fixed price contract. As you sit on this side of the table and look at the number and see it going up a hundred million

dollars, that doesn't sound stable, doesn't sound like a fixed price contract. What is it that causes almost a hundred million dollars worth of growth in the account since last year?

General FRANKLIN. Thirty to \$40 million of that was for live fire testing, which was put into the 93 language, as I recall.

Mr. McDADE. In other words, it was an add on—our nickel?

General FRANKLIN. \$30 to \$40 million of that was for live fire testing where we take part of the airplane, we fire rounds into it. The design threat for the airplane is 12.7 millimeter rounds. Part of it is—

Mr. McDADE. You made a decision to put \$30 million into R&D for live firing testing.

General FRANKLIN. We were directed to add live fire testing beyond what we had thought was necessary.

Mr. McDADE. So that is \$30 million of the hundred?

General FRANKLIN. Yes, sir. We extended the flight test program which I understand what you just said, but there are government costs associated with extending that flight test program and I don't remember off the top of my head what those costs are.

Mr. McDADE. Supplement that for the record.

General FRANKLIN. Yes sir.

[The information follows:]

The Government incurs a \$68 million cost increase for extending the flight test program from the 80 aircraft month schedule to 124 aircraft month schedule.

STATUS OF AIRCRAFT DELIVERIES

Mr. McDADE. Would you update the Committee as to current status of aircraft deliveries under the development contract and the lot three initial production contract?

General FRANKLIN. Yes, sir. On the development contract, there is one aircraft remaining—I am sorry—under the development contract, there was only one airplane and two test articles to be delivered. Under the 2108 contract, which included the first two production lots, there were seven aircraft plus the static and durability test articles. Of those first six aircraft, production aircraft, five have been delivered. The remaining aircraft is on the ramp at Long Beach.

We expect delivery to occur mid-May and we will send that to Charleston by the fourth of June. In the remaining aircraft, I would like to go back to a question Congressman Murtha asked—back in December, I reset the schedule on the contracts after the 2108 contract. That is the third production lot and out.

I read with interest speculation by the GAO as to why I did that. But no one ever asked me, so if I might take a moment and tell you why I did it, I would appreciate it.

Mr. McDADE. Please tell us.

General FRANKLIN. The discussion earlier on the firm fixed price contract, the 2108 contract where you have the FSD portion, the full-scale development portion and the first two production lots, when a contractor gets into a loss ratio like he is in some people become intimidated by the fact that it is a firm fixed price contract, and we are maybe slower in taking actions as to what we ought to do. But the relationship on the 2108 contract in my opin-

ion becomes so destructive and people have become so paralyzed by the fact it was a firm fixed contract, I said given all the political baggage that goes with the 2108 contract, I will not touch that contract.

It was clear that because the contractor was late on the first two production lots, he was also going to be late on the four aircraft in the lot three. At the same time, when lot three was laid in lot four was going to be six aircraft, we got four, lot five was going to be 12, looks like we might get six aircraft. I may have the numbers wrong, but in effect, there has been at least a 30 percent reduction in the downstream airplanes. What we were going to do was if we did not adjust the lot three and four and five and out-schedules, we were going to drive the contractor to hold his manning at a level sufficient to have a rate of up to eight aircraft a year.

Then we were going to force him to lay those people off. We would have a valley and when that occurs, we end up having a lot of loss of learning and disruption to the program because for every person that goes out the door, there are three people that bump because of union bumping rights.,

I said that is disruptive. I wanted to normalize the program, and the first place I could do that was the third production lot and it was the first place that I could get what I thought were the three critical parties together, the Government Program Office, the Defense Representative Office, and the contractor together. I had those three organizations lay out a schedule saying let's put this on a schedule we can make, where we don't do insane things in the way of the production program and build-ups, layoffs, build-ups. So I am the one that reset the schedule and I did it because I thought it made sense. At the same time, sir, we found ourselves in a situation where because of the Congressional restrictions on the lot five and six money, we were going to be faced with a situation——

AIRCRAFT DELIVERY RESTRICTIONS

Mr. DICKS. What are those restrictions?

General FRANKLIN. We could not expend any additional monies until we had delivered the fifth production airplane, and as I recall, we had to have the, I believe the ninth production aircraft had to go to major join with a certain level of completion at the time it went to major join.

If that is wrong, we will correct the record. But we found ourselves in a situation where we could not put money on the lot five and lot six efforts. We were going to create a situation where basically we would gap the production line.

[The information follows:]

Based on congressional restrictions, we could not expend any fiscal year 1993 procurement funds until we accepted delivery of the fifth production aircraft (P-5), nor could we expend any FY93 advance procurement funds for FY94 aircraft until we determined the ninth production aircraft (P-9) moved to major join with more than 90 percent of work completed in position and the assembly of the fourteenth production aircraft (P-14) began in the final assembly facility.

The P-9 and P-14 requirements were certified by the Defense Plant Representative Office as complete in December 1992 and submitted to Congress in January 1993. P-5 was accepted by the Air Force in March 1993. Completion of these actions eliminated situations where we could not put money on the Lots V and VI efforts and thus avoided a potential production line gap.

General FRANKLIN. I took the opportunity to get the contractor to carry those costs. We reset the schedule to a schedule that seemed to make sense and by making sense, I mean we tried to minimize the disruption to the manpower so that we had a—when we laid people off we did it in a way that we had a smoother build-up and not a steep drop and a steep increase.

Mr. McDADE. You are saying that you got everybody together to get a commonality of treatment to try to avoid peaks and valleys in the production force?

General FRANKLIN. Yes, and we were trying for the first time to get all three parties to agree that we had a schedule that people could live with.

Mr. McDADE. When did you do that?

General FRANKLIN. I did that in—it is very easy to remember. The Program Office and the contractor had been stalemated since September on their negotiations.

Mr. McDADE. September of what year?

General FRANKLIN. The 1992 negotiations. The program manager, I asked him to get involved about the—I had asked him several times, but I asked him more forcefully to get involved around 15 to 17 December. He called me on the 21st and said there was nothing he could do and he needed help. So from 21 to 31 December is when that occurred.

Now, I had asked in November, sir, that the Program Office get together with the other parties and lay out a schedule so we had started working the 3(a) schedule in November.

Mr. McDADE. Even though you are getting the parties together, you are changing the specs on the contract, the delivery schedules?

General FRANKLIN. The delivery schedules but not the specs on the contract.

DELIVERY CONTRACT PENALTIES

Mr. McDADE. I meant to say the delivery schedules of the aircraft. Did the contract not contain penalty clauses on the contractor for failing to deliver within the specified time?

General FRANKLIN. The contract does not include specific penalty clauses i.e., liquidated damages for late delivery. However it does contain enforceable delivery schedules. Yes, sir. If he had not delivered on the schedules, we were due consideration. What we ended up doing in order to smooth the production flow, we stretched the schedule more than our assessment—he could have gotten back his schedules quicker than where we stretched the schedule to.

So he is carrying the additional cost of the additional stretch that the Government asked him to take.

Mr. McDADE. He will get well if he comes in before the schedules in terms of a financial decrement to you?

General FRANKLIN. He would have owed us nominally \$10 million for his being late. I believe that is what we felt the value was. In round numbers, we thought that the amount that we asked him to stretch the schedule approximately doubled where our assessment was that he would get back on contract schedules, we viewed that as being \$10 million. The contract guys don't like me to talk about this, but my assessment was that if we had taken a produc-

tion break on the lot five and lot six efforts, that we would have incurred a cost if we restarted the program of at least \$50 million. In my mind, we were about to be in a situation that was untenable.

My real focus on this was to get the program to a normal basis so that we can put reasonable management controls on it.

LONG LEAD AND PRODUCTION LIABILITY

Mr. McDADE. We are glad to have that testimony. It is the Committee's understanding that as of February 1993, the Air Force has obligated about a billion dollars to cover long lead and production liability for follow-on production lots four through six, which total somewhere around 18 aircraft. Is that billion dollar number accurate?

GENERAL DREWES. It is about right, sir. The amount of long lead money that has been obligated on the contract, however, and that is to cover the possibility of termination, just to make sure we don't get anti-deficient, the contractor is, for example, on lot four, of the \$745 million obligated, the contractor has expended about \$323 million; we paid about 72 percent of that.

This is, by the way, I might comment, unusual in this program. We have not had this kind of delay in definitization which has created the need to put this additional money out. It is brought about in part by the delays the contractor has had in giving us a good price because he has changed his overhead so much, closing plants, shutting down, 60-day warnings to employees about unemployment and that sort of thing.

LOT 4 CONTRACT

General FRANKLIN. I might add, we are not proud that we have not definitized the Lot 4 contract. The reason it is not definitized, there are a variety of reasons. Some of them are collectively the government and the contractor were not very smart when they set up the conditions for the contractor to bid on the Lot 4 proposal. The assumption was whatever was in the President's budget was what we were going to get in the way of quantities of aircraft and dollars. When the authorization and appropriation process went through and we got fewer aircraft, we had to go back out and ask for new proposals.

There have been a couple of things like that. We have taken actions to divorce the downstream requests for contracts to isolate those so that they are stand-alone and to also give a range of quantities so that any perturbation like that doesn't force us to reopen it. That is not the way we like to do business.

General DREWES. This experience which has arisen on the C-17 with Lot 4 has caused us to reflect carefully on all the controls and incentives we have on all of our long lead policy.

I will be talking to the members of the House Armed Services Committee staff tomorrow and will be glad to also talk with your staff if you like about some of the details on what we are going to be coming up with in the next week or two as far as an improved policy to cover even this particular aspect of our business in the future.

Mr. McDADE. We have a vote in just a few minutes. I yield the floor.

Mr. MURTHA. Mr. Dicks?

Mr. DICKS. Thank you, Mr. Chairman.

General, I just want you to know that I have been a strong supporter of the C-17 program. I have visited the contractor many times. General Fogleman was here this morning and made a compelling case for the fact that we need a new airlifter. This is a major priority in terms of our ability to move equipment abroad in a crisis.

As you well know, with the return of our forces to CONUS, our sealift/airlift capability becomes even more crucial to our national security. I remain a supporter of this program on the thesis that if the program is terminated we would have to start over and there is no alternative that I know of.

Having said that, are we going to get these problems straightened out? That is what we are worried about. Can we produce this airplane and, will it be the best airlift capability for the United States Air Force?

General JAQUISH. Yes, sir. Before you came in, Mr. Dicks, I told the Chairman that for the first time it is our assessment and that is a consistent assessment with the Under Secretary of Defense for Acquisition as well as the contractor that we are in a position to execute this program. There is no reason at this point in time that this program is not going to be executed.

PROGRAM TERMINATION RESULTS

Mr. DICKS. If we terminated this program, I am of the opinion that it could lead to the bankruptcy of the company.

General JAQUISH. It is our judgment it would have a very significant impact on the survivability of McDonnell Douglas Corporation as an entity. In addition to that, there is not a cheaper solution to the problem. Every time we have looked at other solutions, they cost more money and in fact most recently as a part of the USD(A) review we had this January, JCS has done an analysis looking at different ways to do this thing and in all cases, no matter how you measure it, the C-17 came out clearly, and by a significant margin, the most cost-effective airplane.

Mr. DICKS. My colleague and I have to chair another hearing so I yield to him.

Mr. YOUNG. Mr. Chairman, thank you very much. General, because we do have another commitment very soon, I am going to submit to you several pages of questions on the C-17 that I request you answer for the record.

C-17 CONTRACT SPECIFICATIONS

One thing I would like to take up with you now, is the C-17 and its performance. We found that the contract specifications haven't been met, haven't been met by a computer model, but the actual airplane has actually flown a mission where it exceeded the specifications that it hasn't met on the computer.

General JAQUISH. Yes, sir.

Mr. YOUNG. What is the problem here? If the airplane will do it, why can't we get the airplane and the computer together and have the same story coming from both sources?

General JAQUISH. You are exactly correct. This goes back to what we were talking about earlier with Congressman McDade, the fact that it is a fixed-price contract. Because of that, the contractor must meet specification. If he doesn't meet specification, the government has a responsibility to get consideration for that.

Mr. YOUNG. But those specifications have changed now at least once—I think twice, have they not?

General JAQUISH. There has been a change in those specifications, but at this time, the specifications are set for taking 160,000 pounds of cargo 2400 miles. Now there is a difference in terms of how the cargo would be flown in the specification and the real world.

The demonstration was flown using operational parameters, not the specification parameters. Having said that, the demonstration, although it did carry that amount of cargo and it took it more than the normal 2400 miles, not only would not meet specification, but would not meet the user's requirement because there was not adequate fuel reserve available had they flown that flight over water where you have to go a long way to divert. That demonstration substantiated the computer model that says we are currently missing that maximum payload capability by about 6 percent.

As we both know, very seldom do you ever get an airlift airplane maxed out in weight. They almost always cube out before they get to maximum weight. A recent study done by OSD showed that the average loading weight for a C-17 carrying 150,000 pounds of Army cargo was between 90,000 and 100,000 pounds and only three-tenths of 1 percent of the time did it get to 128,000 pounds and never got to the 160.

There is that dilemma. The good news is that we have in hand what we think is a low-cost, low-risk plan to recover all, but about 1.3 percent of that cargo weight. When we finally get to that position, we will have to evaluate the cost benefit of getting that last 1.3 percent and so forth, but the dilemma has to do with a fixed-price contract and specifications.

Mr. YOUNG. General, we have worked together on a lot of different projects and you know, as well as Mr. Dicks and most of the members of this Committee, we support you. We are your friends and try to give you the tools that you need.

When the C-17 program was first initiated, at one point it was basically dead and this Committee actually put legislation language into the appropriations bill to keep it alive. We were told that this is a great airplane and I think it one day will be. This is a great airplane and here are all the good things that it is going to do.

You can make that same case about almost every program whether it is airplanes or ships or whatever. We are told in the beginning during the conceptual period here are all the great things that this system is going to do and almost every one of them have to be degraded before we get the final contracting and have the operational capability.

I don't say that to be critical. Last year we had an unfortunate experience with a number of shipbuilding contracts. We were told here is what we will do and what we will do it for. We can't do it and surely not for the price they told us. When you are doing conceptual work, you do a lot of guessing as well as computerizing data that you might have, but I think we need to be a little more careful about making claims in the beginning that we really can't back up later on down the line.

I am still your friend and supporter and if we had to scrap the C-17 program today, we are going to have to build something else like it somewhere because the country needs it.

General JAQUISH. Not only years, I guarantee you the design would look a lot like the C-17 and we would pay more for it.

Mr. YOUNG. We know that and we are going to see it now.

General JAQUISH. I have been here testifying in front of this Committee and others for a period of three years now.

This Committee has, in fact, stuck with us through some pretty tough times and on some pretty tough programs. If there is a Committee that has a consistent goal with ours, that is delivering quality warfighting equipment to the men and women out there that need that, this Committee has always been sensitive to that.

You have always backed us through rough times and we appreciate your support.

Mr. DICKS. I have been on this Committee for 14 years. Critics said the M-1 wasn't going to work. The Apache wasn't going to work. The Bradley isn't going to work. The F-117 had problems. But, when we went to fight the war, every one of those systems worked, and they worked magnificently. Had we believed all of the critics, we would not have all of the superior U.S. military equipment that we have today.

General JAQUISH. A good case in point is AMRAAM. General Franklin was the director as we went through all that and you look at the record of AMRAAM.

Mr. YOUNG. Thank you, General. I have a couple pages of questions for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

C-17 AIRCRAFT PROGRAM

Question. General, this committee has in the past been a strong supporter of the C-17 because of our concern about the shortage of lift. With the reductions in forward based troops, it becomes even more important that we be able to respond. For a program that was originally labeled a low risk development with much of the technology "of the shelf," there have been a number of problems not to mention the cost overrun of more than a billion dollars. You have experienced performance shortfalls, a static wing test failure, faulty wing flaps, computer software problems, and fuel tank leaks. Yet you still believe that the answer to our airlift modernization program is the C-17. Even with the problems, it is an impressive improvement to our current fleet. As your statement points out, it has set fourteen altitude with payload world records. It has flown faster both the C-141 and the C-5. And it can land on many short

runways that are not available to other aircraft. If you had been able to predict the problems you have incurred, would you still have chosen the C-17 as the future aircraft for our fleet? Are any of the various fixes you are proposing going to drive the cost beyond what you consider to be affordable?

Answer. The C-17 aircraft has been and continues to be the answer to the nation's airlift capacity and capabilities shortfalls. Problems are anticipated in new development aircraft during test, and the C-17 program is not an exception. The low risk development and "off-the-shelf" technology labels have generated great expectations, sometimes without consideration of the complexities associated with the integration of these systems into an aircraft which is planned to remedy most of the current airlift deficiencies. This task has been a greater-than-expected challenge for both McDonnell Douglas and the Air Force. Despite the real and well-publicized problems that have occurred on this program over the years, the Air Force believes McDonnell Douglas currently has the technical capability, resources, and management team in place to execute this program. However, McDonnell Douglas must maintain their current commitment despite near term losses, and the government must provide a stable program for the contractor to execute. The costs associated with the fixes required to deal with the current problems (wing structure and flap and slat heat damage) are not considered excessive and are affordable under the terms of the current contract.

STATIC WING TEST FAILURE

Question. One of the most troubling problems has been the failure of the wings at a load of 130% of the maximum when the specifications call for 150%. Four aircraft have already been delivered to you with a fifth that is flying at Long Beach. Aircraft 6 through 10 are in production and long lead production has been authorized for aircraft 11 through 28. How many aircraft are you going to have that have a wing that doesn't meet the specification? Will they be retrofitted with a new or modified wing and at what additional cost?

Answer. All C-17 aircraft will eventually meet the full strength requirement. Aircraft through P-10 will be retrofitted with steel reinforcing straps. Beginning with aircraft P-11, all aircraft will be modified prior to delivery to the Air Force. A detailed schedule, including aircraft effectivity, for a redesigned (stronger) production stringer which will eliminate the requirement for the steel reinforcing straps is being developed at this time. The Air Force fully intends to transition to this redesigned stringer on the most expeditious schedule possible.

The estimated cost to McDonnell Douglas is \$40 to \$50 million to develop the fix, repair the static test article and retrofit aircraft through P-10. The worst case cost to the Government, based on steel strap structural modification, is approximately \$1 million per aircraft for P-11 onward until the redesigned stringer is incorporated. Since the Lot III aircraft (P-7 through P-10) are on a fixed price incentive contract, the Government and McDonnell Douglas will share the cost of retrofit for these aircraft.

PERFORMANCE OF C-17

Question. It is my understanding that the original design requirement was for the C-17 to carry 172,000 pounds for 2,400 miles and you dropped that to 167,000 for the development contract and that now you are down to 160,000 pounds. The development contract required that the plane be able to land on a 7,600 foot runway with maximum payload but according to reports that is now up to 8,500 feet. Whatever fix you have for the wing would in all probability add more weight to the plane. Do you anticipate any further degradation in the performance specifications to the C-17?

Answer. Preliminary flight test data indicates a potential payload/range deficiency. However, the C-17 program office is conducting an aggressive program to reduce aircraft weight and drag while increasing engine fuel efficiency that will reduce the deficiency significantly. The analysis that highlighted this deficiency included weight allowances for fixes for the wing, the slats, and the flaps. Since that weight has already been added, it will not affect the payload/range estimate. It will take an ongoing commitment from the contractor to an aggressive weight reduction program to avoid further degradation in performance. Fuel efficiency and drag performance are both known and understood and, therefore, should not be of further concern.

Like the payload/range requirement, the critical field length for the C-17 was changed from 7,600 to 8,500 feet in the May 23, 1991, System Operational Requirements Document (SORD). These, and other, changes resulted from a Chief of Staff of the Air Force directed requirements scrub conducted during the fall of 1989. The SORD requirements represent realistically attainable values based on updated operational scenarios and detailed reviews of Army equipment rather than on the extreme parameters of the C-17 design proposal.

C-17 OPTIONS

Question. What would be the cost comparison of buying more C-5's vs. continuing with the C-17? Would you have to purchase more C-130 aircraft if you went with the option of more C-5's?

Answer. To achieve an equal capacity of 49 million ton miles per day (MTM/D) using additional C-5 aircraft rather than C-17s would require a life cycle investment of at least \$58.3 billion over 30 years rather than the \$55.8 billion projected for the C-17 option for the same period of time based on a Jan 93 update to the Sept 92 Joint Staff Cost Effectiveness Study. Both alternatives call for the retirement of all C-141s. This data, based on the Cost Analysis Improvement Group high estimate, includes all research and development procurement, military construction, operations and support funds for fiscal years 1992 through 2022 expressed in constant FY 1992 dollars. It is important to note that even with the same 49 MTM/D capacity, the C-17 option yields a throughput capability that is about 30% greater than the C-5 alternative in deployments where the reception capacity of the airfields is constrained. Reception constraints were encountered in Operation Desert Shield/Storm and could easily occur in future deployments.

To maintain equal tactical airlift capability between the alternatives, the C-5 option would require a larger C-130 fleet than the C-17 option.

Question. Have you considered the options of procuring more C-5's or extending the life of the C-141? What are the disadvantages of those two options? Would either of those two options be more cost effective?

Answer. We have considered both of these options and, based on the data provided by the Cost Analysis Improvement Group and the Joint Staff's cost effectiveness study (September 1992), the C-17 is the most cost effective solution to the airlift shortfall. The C-17 and C-5 options call for the retirement of all C-141s. However, as a result of fiscal year 1993 Congressional language, we are looking at the feasibility and cost of the C-141 service life extension program as an alternative to satisfying the shortfall. The C-141 option calls for the development of a follow-on airlifter to eventually replace the C-141.

Neither the C-5 nor C-141 option addresses the need for direct delivery capability to small, austere airfields. Neither has as great a throughput as the C-17. Neither option takes advantage of the smaller crew size and lower maintenance manhours of the C-17. The C-141 option defers the problem of our aging airlift fleet until the development of a follow-on airlifter that will probably have most, if not all, the characteristics of the C-17.

Question. The C-5 was not utilized in Panama or Grenada because it is hard to maneuver on the ground and would have tied up other traffic. How much did you use the C-5 in Operation Desert Storm? Compare how the C-17 would have been used in place of the existing fleet?

Answer. Actually, the C-5 was used to support operations in both Panama and Grenada. In Panama, the C-5 flew 183 missions, including two C-5s that flew into Panama on the first day of the operation. In Grenada, the C-5 flew a total of 52 missions, although no C-5s landed in Grenada until after the conclusion of hostilities.

During Operation Desert Shield/Storm (ODS) the C-5 was used extensively. By the second week of the airlift flow, 94 percent of the C-5 fleet was committed to support ODS. The C-5 flew 3,770 missions out of the 15,976 total airlift missions.

A review of the airlift data from Operation Desert Shield/Storm shows that an additional 28,000 tons of cargo could have been delivered in the first 45 days if 80 C-17s had replaced 117 C-141s. In the first 12 days alone, airlift tonnage would have increased by one-third and this additional airlift capability could have delivered:

The maintenance and logistic support for 40 fighter squadrons (10 F-15, 10 F-16, 10 F-4, and 10 A-10 squadrons); or

The maintenance and logistic support for 3 F-15 squadrons, 3 F-16 squadrons, as well as airlifting the personnel and equipment for 2 light infantry brigades; or

Airlifting the personnel and equipment for 1 light infantry division.

Another way to look at it, is that if the amount of airlift tonnage actually delivered in the first 45 days was held constant, the C-17 could have delivered the same amount of cargo in 35 days. In addition to this improvement in strategic capacity, the C-17 would have

added a theater airlift capacity of 11,000 tons—equivalent to the work of 16 C-130s. This additional theater airlift capacity would have been realized through a combination of direct delivery and theater shuttles.

Question. It is my understanding that the C-5 has 100 percent more range with the same cargo and 63 percent more cargo with the same range as the C-17. Some claim that with its lower weight per tire, the C-5 has a greater capability to operate on unpaved surfaces than any other military airlifter including the C-17. Do you dispute these claims?

Answer. At equal payload (160,000 pounds), the C-17's range is 2,400 nautical miles while the C-5's is 3,650 nautical miles, an increase of 52 percent. At the same range (2,400 nautical miles), the C-17 can carry 160,000 pounds and the C-5 218,000 pounds, an increase of 36 percent.

With regard to weight per tire, while true the C-5's is lowest and achieves a lower Load Classification Number (LCN) than any other strategic airlifter, this alone does not give it greater capability to operate on unpaved surfaces. While the C-5 has demonstrated its ability to taxi on unpaved surfaces during test, the aircraft is not suited for routine flight operations on unpaved surfaces due to the potential for significant foreign object damage (FOD) to engines and to hydraulic lines in the wheel well area. The C-130 and the C-17 airlifters have been specifically designed for the hazards associated with flight operations on unpaved surfaces and therefore are better suited for operations in this environment.

Question. "The C-141 is already well beyond its original service life and is limited in the kinds of mission it can fly. Originally, it was to have a life of about 25,000 hours and modifications increased that life to 45,000. Now there is an unsolicited proposal to increase that life to 85,000. Is a service life extension program a viable alternative to continuing with the C-17?"

Answer. As part of the FY93 Congressional language restrictions on FY94 funds, the Secretary of the Air Force was directed to convene the Scientific Advisory Board (SAB) to assess the technical feasibility of performing a C-141 service life extension program (SLEP). The SAB convened in early Feb 93 and is in the process of conducting their assessment—an interim report is expected in the May timeframe. In addition, the language directed a C-17 Defense Acquisition Board be held to include, among other things, a Cost and Operational Effectiveness Analysis (COEA) of the C-17 program. The COEA will assess a number of alternatives including an option for the C-141 SLEP. Results of the COEA are expected by Aug 93. The viability of a C-141 SLEP will be determined following these efforts.

Question. What is the projected life of the C-17?

Answer. The projected life of the C-17 is 30,000 standard operating hours.

Question. Is there a better option than proceeding with the C-17?

Answer. No. The Air Force has reviewed, and will continue to review, alternatives to the C-17. We have yet to find an alternative which meets our needs more cost effectively than the C-17.

[CLERK'S NOTE.—End of questions submitted by Mr. Young.]

Mr. MURTHA. Mr. Hefner.

CONTRACTOR PREPAYMENTS

Mr. HEFNER. I have a couple of questions on the C-17 program. Has the controversy been resolved about some prepayments to the contractor on the C-17?

General JAQUISH. Yes, sir. Let me speak to that. The DOD I.G. has issued a report that came out in mid-January that alleges some wrongdoing by five named Air Force individuals, two civilians, and three general officers.

The report alleges that these individuals withheld information and in some way tried to influence progress payments to the contractor throughout the system; that upon direction from Secretary Aspin to the Acting Secretary of the Air Force, they are currently under investigation by the Air Force, has an independent investigator and a team of people looking at that and their report is to be complete by the 20th of April. So I should not make much comment beyond that.

Mr. HEFNER. That is okay.

General JAQUISH. Other than to say that that is ongoing and those results should be coming out at that time.

Mr. HEFNER. Here is the point I want to get to and I don't know how much money is involved. At this point, we are over a billion dollars over cost. Am I right?

General JAQUISH. Yes, sir.

CONTRACTOR COST OVERRUNS

Mr. HEFNER. My concern is that McDonnell Douglas will have to eat this cost overrun. It seems to me if they are in dire financial circumstance we could run into real problems and some possible massive bailouts down the road on this program. Do those concerns have any validity? Is that something that concerns you?

General JAQUISH. We are definitely concerned about the fact that McDonnell Douglas is currently losing \$1.1 billion on this contract and will probably lose more on this fixed-price development contract.

Now, with regard to the allegation on improper progress payments, the amount of money associated with those is not a huge amount of money and I can't give you those off the top of my head, but we have no reason to believe that those progress payments were in fact improper.

The money, as I think you know, does not flow from the Air force to the contractor for progress payments. There is an independent command, Defense Contract Management Command, that has in-plant representatives and they monitor the work accomplishments, where they think they are and what amount of progress payments ought to be given to those.

Those progress payments have all been audited by the Defense Contract Auditing Agency and everybody has looked at those and the individual responsible for issuing those progress payments is convinced that those progress payments are appropriate. They were appropriate when he made his judgment and they remain appropriate.

I don't think that this ongoing look at the allegations from the DOD I.G. will have an impact on that aspect. Where it does have

an impact is all of this plays out in the papers and plays against these individuals who at this point are defenseless, and we have all read the stories and so forth. So they are in a position that until the Air Force completes this investigation and deals with the recommendations that it is a very_____.

AIR FORCE INVESTIGATION

Mr. MURTHA. When is that due?

General JAQUISH. The report is scheduled to be done on 20 April. I will tell you that I personally believe if you were interested, that the five named Air Force individuals would be more than happy to come over here after that report is out and give you testimony so that you have the full picture of the circumstances around those payments.

MCDONNELL DOUGLAS FINANCIAL STATUS

Mr. HEFNER. I guess my concern is that if we are going to get any big bucks to pay other bills, you have to go to a major system like this.

The last thing in the world that we need is for us to come up and say that McDonnell Douglas has already lost \$1.2 billion and that they are going to lose more and they are not going to be able to deliver on this system.

General JAQUISH. Yes. As a part of the review that previous Under Secretary of Defense for Acquisition had of the C-17 this past January, there was a look by the DOD staff at the financial viability of McDonnell Douglas Corporation. From that, the judgment was that it was marginal, but improving and that they were in position to execute this program, but I know that General Franklin would like to comment.

General FRANKLIN. Sir, I think one key point is to date McDonnell Douglas has already written off—they are gone ahead and assumed the losses for almost \$700 million out of that \$1.1 billion or \$1.2 billion that we expect them to lose. So while there is still an awful lot of money that we think they are going to lost, they have——

C-17 COMPLETION COSTS

Mr. HEFNER. We won't hold you to a projection.

General FRANKLIN. Right now our estimate at completion is \$7.8 billion. We think because of the wing failure and the fixes associated with that and the—their problems, heat problems with the slats and the flaps, we think those two things will drive another \$250 million.

Mr. DIXON. You said billion dollars?

General FRANKLIN. Million dollars. That is against a contract value of slightly over_____.

General JAQUISH. He said million dollars. There is a contract ceiling_____.

Mr. DIXON. I thought the question was how much did you expect McDonnell Douglas to lose_____.

Mr. HEFNER. I am talking about the entire program. We already have a \$1.2 billion cost overrun out of \$7.9 billion. Is that correct?

General JAQUISH. Yes, sir. As we currently measure it, we see that they have lost \$1.1 billion and based on our knowledge of things they must do to complete the fixed-price contract, we believe that will go to probably \$1.3 billion.

Mr. HEFNER. Does that include the delivery of the rest of the airplanes?

General JAQUISH. No, sir. That is for the existing fixed-price contract. As we look at production and look at Lot 3 out through the program, we believe that there is some potential, not great potential, that for Lot 3, they could make money.

Beyond that, because we have not negotiated those contracts, I would only say that because of the management actions they have taken and because of the quality improvement they have done, we see no reason whatsoever starting with Lot 4 that they should not be making a fair and reasonable profit.

Now how that is going to sort out against the life of the program, it would be just a guess at this point in time, but we see they are in position to start making money in the production side of this contract.

Mr. HEFNER. I have been on this Committee for quite some time and I am not aware of any program that was even close to meeting the original estimates. Cost overruns are tremendous. It will be very hard to get the votes to keep the system in, especially when you have tradeoffs you have to make.

I am concerned that cost overruns will continue. Do you think you might get out for another \$100 million?

General FRANKLIN. Yes, sir.

BASIS OF COST OVERRUN

Mr. HEFNER. What caused this \$1.2 billion overrun? That is a considerable amount out of an \$8 billion program.

General FRANKLIN. I will give you an answer that may not be universally accepted and some of it is speculation and I think some of it is fact. My opinion is either consciously or unconsciously the contractor understated his bid at the time of the original contract award. You ask him and he will tell you that he thought he could make money, but as General Jaquish mentioned when the contract was put into effect in 1985, not only were the terms and conditions the same four years after the contract selection had been made, but the price, except for inflation was the same, that the contractor had bid during a competitive competition, so he probably understated his bid by a fair amount.

However, I would also say to you that I have been on the program since August 1991 and as I look back at the program, the management team and the management of the program by the contractor was not a first-team effort. We think it is a first-team effort today, but there were a lot of costs the contractor could have avoided had he chosen to.

The third thing that I would say to you, 18 months ago, it was absolutely clear that the contractor was making decisions based on near-term cash flow and he was not making decisions as to what is a smart investment to make on the program. For example, in the tooling area, the contractor could have cut his losses by making

some investments in tooling, which because it was a cash flow arena, it appears he chose not to make those investments because it was an immediate cost out of this pocket. It would have been a very smart investment to have done.

Three things: I think he underbid. he didn't manage it well, and I think he got into financial problems and he had to make short-term decisions.

Mr. HEFNER. I am not asking you to make judgments but maybe some of your people might have been negligent in their policing of this program. You got it 18 months ago but they were on the ground for five or six years.

General FRANKLIN. Yes, sir. I don't know that I would say negligent. What I would say is that I think there has been a philosophy that the contractor signed up to a fixed-price contract. He has the liability to work that.

Everybody has their own style. My style is an engagement style. When I came on board, I felt that we should be doing some things independent of whether we had a fixed-price contract or not. We need to be making some demands.

We have made those demands and I think the data as to where they are today in the production program shows that by making those demands, there have been significant improvements.

AIR FORCE C-17 MANAGEMENT

Mr. HEFNER. When you start a program, how does the Air Force assign responsibility for it?

The C-17 was a program that they were going to be proud of. It seems to me there should have been red flags that went up saying we have to take a close look at the management of this program. Do you feel like maybe we were a little bit negligent—I am not talking about pointing fingers, but there has to be some responsibility for what happened on this program. Does that make any sense?

General FRANKLIN. I understand exactly where you are coming from. To be candid, I am reluctant to put myself in those shoes at that time. When I came on board, I saw things that I thought we ought to be taking actions on. We took those actions.

I really, sir, would not like to speculate.

General JAQUISH. Let me just say that if I had to be critical of the government's management of this program and approach to this program, I think the root cause as we have spoken to before, goes back to the fact that we had a fixed-price contract mentality.

That is what this contractor has. That mentality is based on a contractor putting in a bid and from then on if he wins or loses on that contract, it is his tough luck. That is no longer our policy. We have changed that policy for all the reasons that you know just as well as I do. It is a very difficult environment out there. When a contractor starts losing money, performance is a very tough thing to do.

Having said that, if I had to be critical of prior management of this program particularly, I would say in the 1985 to 1988 time frame, because I think there probably were warning signs there, I think the Air Force and the people that were working this program

at that time looked at this great company, McDonnell Douglas. They are the company that built the F-15 for us, which is a world-class airplane and so forth.

I think perhaps they may have sat there with some blinders on saying they can do it, they can do it, they can do it.

In fact, it turned out they didn't do it the way we thought they were going to do it, but I don't believe that it was negligence in that sense—we both got ourselves, the government and the contractor, into a situation where he is losing a lot of money and he lacks the flexibility during that period of time to turn the program around.

C-17 PRODUCTION EXECUTION

Mr. HEFNER. Well, I guess I accept that, but still to me, we are held responsible. This Committee is held responsible when we have programs that get completely out of hand and they know where we live. All I am saying is that it seems to me that there should have been warning signs that could have probably saved us some heartburn on down the road.

General JAQUISH. I understand where you are coming from. Let me say, General Franklin is the man who is responsible for executing this program.

Mr. HEFNER. Now.

General JAQUISH. Now. I think he would have some very specific views as to what sort of commitment he is willing to make in terms of the execution of this program.

Mr. HEFNER. What other programs, General Franklin, did you have?

General JAQUISH. The F-15, F-16, ATF, and the C-17.

Mr. HEFNER. You have been successful, you could point to them and say I was the father of the F-15 and F-16. We have the finest fighter planes in the world.

General FRANKLIN. Sir, I cannot be congratulated on the F-15 and the F-16.

Mr. HEFNER. You better accept it while you can.

General JAQUISH. He will accept it on AMRAAM.

General FRANKLIN. I will certainly tell you that before coming to this job, I spent three years—sometimes it seemed like 30 years, but I spent three years working AMRAAM and I think that if you go look at where AMRAAM was when I took that program and you look at where it ended up when I left, what you will see is I have one focus.

In our oath of office, there is a phrase that says "I will well and faithfully discharge the duties of the office I am about to enter." That means to me my one focus has to be I have a responsibility to get the right product to the guy who has to use it, the guy putting his life on the line. It is easy to get side tracked on other things, but if you look at AMRAAM, I think you would see that I have one focus and that focus resulted in what I think is the finest air-to-air missile in the world and if you just look at the data, let the facts speak for themselves. Sir, I would say one thing to you on the C-17—

Mr. HEFNER. I have to go vote. Say it for the record, General.

C-17 PROGRAM IMPROVEMENTS

General FRANKLIN. All right, sir. Congressman Murtha, if you had asked me 18 months ago when I came into this job, I would have given you a lot of "I am going to do's." Today I would say we have done things. We are not there. We are not through.

The management team that is in place in McDonnell Douglas is a result of us making the point very clearly that the management team had to be changed, that changes in the engineering organization and where we are today in engineering on this airplane are a direct result of our actions, that changes that are occurring in late parts on this airplane are a direct result of our actions, but we have to get the contractor's attention because he is the guy who has to execute the changes.

What I would say today as opposed to 18 months ago, we have done a lot of things. We are to the point now where it is blocking and tackling, it is fundamentals. We are at the point where we have to execute the program. There is an equal responsibility in my opinion on the Air Force side as there is the contractor side. So I want you to hold me accountable.

I started back in May of last year. I forced senior level reviews at the Douglas Corporation with me on the status of this program. I was amazed that there was not corporate involvement and I forced that involvement. We have continued that involvement and what we are doing now is we have on a periodic basis at the executive vice president level within the McDonnell Douglas Corporation reviews of this program.

We will do those monthly. We will continue to do them monthly and there are about eight or nine things that I think are execution issues which I would be glad to come back to you on a periodic basis and give you a status report. Not only the status report, provide you the data that lets you make an independent assessment whether you read the things the way we read them.

Quality, production assembly status, cost, schedule, entire management—if there is a big, rough spot in this program at this time, it is flight test and this critical to the execution of the program because it verifies that the things we say will work, will indeed work. The flight test is critical.

Engineering, aircraft acceptance, capability to the user and operational, getting the airplanes out to the operation and the support out to the operation.

We will review those at the most senior level short of going to St. Louis within the McDonnell Douglas Corporation on a monthly basis. I personally will do that.

The reason is we have to have flags that tell us whether problems are coming. The function of management is not to say I have a problem. The function of the management is to say I saw the problem coming and I fixed it before it became a problem. So hold me accountable.

Mr. MURTHA. I appreciate that, but I remember the Secretary of Defense sitting there and telling me everything was okay with the A-12. The Service Secretary said the same thing and Secretary Cheney called me a month later and said we are cancelling the pro-

gram. You have made real progress, it looks like, and we hope to have that continue.

Mr. Wilson?

Mr. WILSON. Thank you, Mr. Chairman.

General JAQUISH, I had several questions for the record but they are questions that have been asked and asked over and over again. So I will ask them in a way to make sure that we get them in the record.

You have talked about the production schedule and my question is, why is this better than the previous schedule. I presume the answer is because of the new management teams and new engineering that are in force?

General JAQUISH. Not only that, for the first time the schedule is executable. It is achievable and the Air Force and contractor agree. From that perspective, we have a level playing field.

Mr. WILSON. And would that be the same answer to the question regarding the stops and starts and why you now think that you have it right this time? That is the same question.

General JAQUISH. Yes, sir.

C-17 PROGRAM JUSTIFICATION

Mr. WILSON. Given the general downsizing of the forces and given the airlift capacity that we already have, I think the big question is why do we need the C-17?

General JAQUISH. I would just comment that the we have done a lot of studies over a period of years. There was a study recently done by the JCS—Joint Chiefs of Staff—and reported to the Under Secretary of Defense for Acquisition on that and it looked at all sorts of different combinations, different scenarios, stressing scenarios and by a wide margin the C-17 remains the most cost-effective option. Not only cost effective in terms of the cost of delivering one ton of goods anywhere, but from the perspective of total cost.

Even if you SLEP'd the C-141 now, that only buys you X amount of time and in short order you would have to start a replacement program and that would look a lot like a C-17 because the airplane meets our needs. I think as we downsize and the drawdown our forward deployed forces and we have to depend on the ability to project power from the CONUS, it is airlift and sealift that are vital to that kind of strategy. So our current fleet can't cut it and the C-17 can.

I am here to tell you that when the C-17 gets delivered to the user and is out there moving cargo around, we will look back and say that is a world-class airlifters.

Mr. WILSON. How many of them are we planning on building?

General JAQUISH. We are going to buy 120 production airplanes. We started with 210 and in 1990 as part of the major aircraft review, the Secretary of Defense, Secretary Cheney, rolled it back to 120 and that is where we are.

Mr. WILSON. With the current airlift capacity, we were able to put a heck of an Army in Saudi Arabia.

General JAQUISH. I would like General Caruana to speak to that. Mr. WILSON. What difference does 120 airplanes make?

General CARUANA. Taking into account the fact that the fleet that we have is aging, we are looking at a different environment. We may not have as robust a capability in terms of airfields and support, and we had 5½ months to do that.

A case in point, when we were building up early on and when the decision was made to support the ground forces and we had a fixed time frame to do that, there was a lot of pressure put on the port facility at every airfield that existed on the Saudi Peninsula.

We were limited with the number of C-5s that we could get into places like Dhahran. With a C-17 capability, you can either move the same amount much quicker which we believe we probably will have to do in the future, or we will be able to move a lot more and in addition have the capability with a C-17 to forward deploy.

If we had a need, for example, to bring heavy operating vehicles right to an area where the soldiers and Marines need them, the C-17 could do that right from the CONUS.

I think our Desert Shield/Desert Storm experience points to the need to have a capability like we have with the C-17. We can't count on that kind of lead time. The needs we had were satisfied only because we had that time capability.

CURRENT AIR FORCE AIRLIFT CAPABILITY

Mr. WILSON. How many C-5s do you have?

General JAQUISH. One hundred nine PAA. There are additional spare airplanes.

Mr. WILSON. How many C-141s?

General CARUANA. We would have by the turn of the century around 128 PAA, when we expected to have the C-17s.

Mr. WILSON. We are not building C-141s anymore?

General CARUANA. No.

Mr. WILSON. What is the other aircraft?

General CARUANA. The KC-10 and we have 57 PAA of those in the Air Force that were used in a dual role.

Mr. WILSON. So the total airlift is 109 C-5s—how many 141s?

STATUS OF C-141S

General CARUANA. We have 234 now.

Mr. WILSON. Then we are talking about 120—

General CARUANA. We have 234 C-141s. I am not sure if General Fogleman mentioned, today many of those aircraft and almost 50 percent of that C-141 fleet is not capable of carrying to max airlift capacity because of problems that are being worked right now to fix with the post, the wing box and also a pressurization problem. So we have to date a problem with our capability with the airlift fleet we have today.

General JAQUISH. We have a handout. If you look at pages 8 and 9, we have some indications of the value of the C-17. On page 8,

that clearly shows that our current fleet delivered 99,000 tons in 45 days, the first 45 days of Desert Shield and had we had the C-17 there, we could have delivered 36 percent more in terms of tonnage associated with that. So it shows you the value of the C-17.

On page 9, we speak to a smaller airfield scenario in Somalia where the C-17 could unload 915 tons of cargo per day in Somalia versus the C-5 at 460 tons or the C-141 at 396 tons. It gives you appreciation for the magnitude of the contribution the C-17 can make.

C-5S IN SOMALIA

Mr. WILSON. You are using C-5s in Somalia?

General CARUANA. I think we are using them very limited, but I don't think we are getting C-5s all the way into Somalia itself.

I will have to check that fact.

[The information follows:]

We are operating about two C-5's per day into Mogadishu Airport.

General CARUANA. The capability to maneuver makes a big difference on how you can utilize the ramp space. In Southwest Asia, we had a limitation because once you had two C-5s on the ramps, you were stuck with what you had there.

With the C-17 we'll have an ability to back the airplane or if necessary to combat, offloading airplanes on the same ramp space to get the cargo off quicker.

When we have troops that are potentially committed to combat and you need to get supplies to those people quickly, the C-17 has the capability because it was designed to do that very thing.

C-17 DELIVERY

Mr. WILSON. General Franklin, if we fund the Air Force request, when will we get our first C-17?

General FRANKLIN. Sir, the first airplane goes to Charleston the 4th of June of this year. That is the sixth production airplane. The first five production airplanes are in the test program. After that, all the remaining airplanes go to the user.

Mr. WILSON. The tests so far have been satisfactory?

General FRANKLIN. Generally the tests have shown the airplane to have good handling qualities. We have done at Fort Hood a load demonstration that shows good capabilities.

Like any test program, it is showing some problems, but we have not seen any showstoppers and by and large we would say that the airplane is performing very well.

Mr. WILSON. What is the schedule for production?

General FRANKLIN. The schedule for production—we started out with six aircraft, the first two production lots. We have four aircraft in the third production lot, and then we have a build-up schedule which eventually we would like to get up to 16 aircraft a year.

Mr. WILSON. How many are going to be produced in 1993?

General FRANKLIN. 1993 (Lot V) is six aircraft, sir.

Mr. WILSON. Thank you very much.

Mr. MURTHA. Mr. Dixon.

Mr. DIXON. Thank you, Mr. Chairman.

General Franklin, Congressman Lewis and I visited the plants at Long Beach. Were you the officer there that day?

General FRANKLIN. No, sir.

PERFORMANCE OF MCDONNELL DOUGLAS

Mr. DIXON. I am from Southern California, so I have an interest in this program, if nothing else than an economic interest in the program. I think this program is in real trouble. You have those critics who say it is just a jobs program and that is the reason we entered in it.

You have people who say with the new world order, it has no purpose that we do not need to finance the C-17 at this time and even if you do it is too expensive and we can't tell what the exact price is going to be. People say there is hanky-panky in the contract, some prepayments. We have an issue of whether the company can really perform.

The testimony this morning and this afternoon indicate that the company underbid the program, had a poor management team and cannot meet up to the specifications in the contract. You show me that problem and I think you have a real problem of getting congressional support.

General FRANKLIN. I would say a couple of things.

Mr. DIXON. I was just trying to outline where I was going. I wasn't looking for an answer. I just mentioned to the Chairman from the testimony today it seems at least one of the parties that we ought to be talking to is this new management team that you officers have so much confidence in.

Let me make some statements and then if you want to address them one at a time, I will be glad to give you time to do it.

The company's ability to perform seems to be hinged on the reforms that General Jaquish says have been made. I don't know but I don't think those people are in the room. We are just taking your word and I am sure General Franklin, you certainly have the ability to monitor this program. But the fact of the matter is the program got out of hand under another officer. So there is no reason to believe these statements.

General Jaquish, I notice that your last statement in your prepared remarks says, "but there are no guarantees."

One final question that I will address concerns the contractor's ability to produce and deliver aircraft on schedule at a cost acceptable to the Government.

When you get through all these other objections about the C-17 having no purpose and it is too expensive, then you hit the nail on the head. While there are no guarantees, you say, we are confident that previous cost projections were not necessarily based on limited actual production data. With substantial production data now available, we have a much higher degree of confidence in our estimates.

I guess you are referring to the cost factor. We realize that the only budget data available to Congress reflects the fiscal year 1994 President's Budget. Now budget figures should become available from the administration to Congress by early April. And so I guess what I would like, General Franklin, for you to respond to is

whether these prepayments that were made were appropriate or not. I would assume that they were appropriate, but I would suspect that the company would have been in serious financial trouble had they not gotten that money.

Now there is \$1.1 or \$1.2 billion over the ceiling of the contract that the McDonnell Douglas has to absorb. They have, as you say, written off \$700 million. But there is no guarantee, it seems to me, that they are not going to incur additional expenses, which raises a legitimate argument as to whether they can fulfill this contract at all.

And then the General this morning said that the Air Force had some certain specifications and McDonnell Douglas, said, "We can raise the standard." When you put all that together, although I support this program, it doesn't seem to Members who don't have an economic interest in this program that is worth struggling with. If you could respond to all or any of that.

MCDONNELL DOUGLAS C-17 PROGRAM CHANGES

General FRANKLIN. Okay, sir. I may be treading where angels fear, but let me try. I don't think the fact that there is a new management team is by itself sufficient to say the program is turning around and by itself the fact there is a new management team should not give anyone any confidence. I think what you have to do is you have to look at the actions that have occurred and you look at the metrics or the measurements of whether progress is taking place to be the guide as to whether in fact this contractor has really turned the corner.

By the way, in my opinion, a good management team by a contractor is absolutely essential. It is almost impossible for the Government to make up for deficiencies in the leadership. So having a good management team is critical, but it is not sufficient. If you look at where we were on this program a year and a half ago, there was an engineering backlog on the program that had been unchanged for two years and there were no actions to change that engineering backlog.

The reason that is important is the engineering backlog tells you that the contractor has a lot of work to do to just define what he wants to build. His process was one where when he did define it, he defined it a little late. For example, on the first test aircraft, his planning was such that he was not going to define the final design, kind of like you going to contract for a house to built and you don't tell the contractor until the day you want to close, by the way, you wanted another bathroom in there. That will slip things. His planning was such that he did not finalize the design for that particular airplane until the day it was built.

Mr. DIXON. I gather that those decisions made by the management were driven by cash flow in part or by financial status in part?

General FRANKLIN. It is not clear that those kind of decisions were solely driven by cash flow. It appeared to me that the contractor's organization structure was such that he incentivized each functional area to optimize, or in my term, sub-optimize, his area, but there was no optimization on the program.

Mr. DIXON. It would seem to me, General, that those decisions were made because of McDonnell Douglas' financial status. If this happened in the past, it may happen in the future.

General FRANKLIN. Sir, you are exactly right. One of the things that the contractor has done is he has forced his management team to be a team. Before there were stove pipes, each one working his own individual area. Today they are forced by their bonus system which is a major change to work as a team. So it is a case now where the management team is rewarded by how well the program does, not how well engineering, for example, by itself does.

So you are exactly right, there are fundamental changes there. What you see today is you see that they have changed where there was a constant very high engineering backlog before, that was very late, they have burned that backlog down so they have defined the airplane and they have burned it down to a low level and it is far enough in front of when they are going to build that particular part of the airplane that the design is stable.

That is an example of a hard change. If you go back 18 months and were to look at late parts, you would have seen like the engineering backlog, no program whatsoever. Engineering was driving the people that were trying to order parts as ability to order parts because without the design it is hard to put it on contract.

If you look at the data since November, there has been about a 70 percent reduction in late parts. That comes about because of two things: the engineering is fixed and the other thing is they have fundamentally changed the way they are handling the parts. They still have late parts, but it has improved. If you go look at production measures early on, and this was a cash flow issue, they would not hold an airplane in a position and let all the work be completed. They would move it on so we had what we call an awful lot of travel work.

Now if you look on the 10th production airplane estimates are 97 and 98 percent of the work will be done and in position prior to where we join all the major assemblies together. So if you look at the data—for example, there is an issue as to whether there is an improvement on quality. You can get multiple measures as to whether quality is improving. Some of those measures say if it is improving very, very slowly, but if you pull the problem apart and look at the overall impact of quality, you will see significant improvements in quality during assembly stages and these improvements continue to occur although at a lesser rate) as the airplane moves down the production line.

The management team and the efforts that are going on now are bringing fundamental changes which are clearly in the right direction. We still have work to do. For example, we need to get retrofits going and we need to work some of the engineering issues a little harder, but major changes in that respect.

You asked about cost.

OVER CEILING CONTRACT COSTS

Mr. DIXON. I believe you said that you estimated another \$100 million in cost to McDonnell Douglas over and above the \$1.1 billion or \$1.2 billion over the ceiling of the contract?

General FRANKLIN. Yes, sir. Well, it could be as high as \$250 million, but that is on what we call the 2108 contract. In the third production lot—

Mr. MURTHA. What was that question?

Mr. DIXON. If I understood what you were saying, there is \$1.1 billion or \$1.2 billion, which is it?

General FRANKLIN. Our estimates now are \$1.1 billion over the ceiling on the contract.

Mr. DIXON. And there are estimates that if the cost increases by another \$250 million then McDonnell Douglas would have to absorb it?

General FRANKLIN. Yes, sir. And that is on the 2108 contract. Those costs are principally coming in the development side. If you look at the third production lot the Defense Plant Representative Office and the contractor are all saying that based on the current estimate to completion on the third production lot the contractor should make \$90 to \$100 million.

Mr. DIXON. Let me ask some questions that I don't really understand, so if they don't make sense to you, be kind enough to correct me.

This 2108 contract, how many production lots does it call for?

General FRANKLIN. It has the first two production lots and there are six aircraft.

Mr. DIXON. Six aircraft, three in each lot?

General FRANKLIN. Two and four.

Mr. DIXON. This may be the way Defense operates, but you keep hinging on this third lot. As I would understand it, there is no contract for the third lot.

General FRANKLIN. No, sir. The third lot is a definitized contract and we will start delivering on that contract this summer or early fall. We will start the seventh production airplane—will be delivered, I don't remember the exact date.

Mr. DIXON. The P-5 is going to be delivered shortly and the seventh is in the third lot?

General FRANKLIN. Yes, sir.

Mr. DIXON. Is there a contract for the third lot?

General FRANKLIN. A definitized contract, all the terms and conditions, price have been agreed to. And that was definitized July 1991. The fourth production lot is the one that is undefinitized.

Mr. DIXON. Let me just state it once again. If in fact it is going to be roughly \$1.4 billion in cost that McDonnell Douglas is going to have to absorb, and on the third lot they could make a profit of \$100 million—

General FRANKLIN. Right now we are saying \$90 to \$100 million.

Mr. DIXON. It would seem to me that you would have to be very concerned—I believe that there is a purpose for the C-17 and I believe that the C-17 is a good plane. But you have to have doubts, especially when the General says, well, you know, we always had reservations as to whether McDonnell Douglas could perform the contract when it was awarded.

I believe, General Jaquish, that those were your words earlier today. You have to be concerned whether McDonnell Douglas can produce a few more C-17s. But if there are any more major problems, they are going to be in a tremendous strap, and certainly it

lends credence to that when for some reason, legal or otherwise, the Air Force had to advance some money to keep them afloat.

So I am not against the program, but it just seems to me that you would be looking at their financial sheets to see if they are going to be able to stay in business.

OSD FINANCIAL ASSESSMENT

General FRANKLIN. Yes, sir. As General Jaquish indicated earlier, when OSD did their review in January, one of the specifics of their review was whether the company had the financial viability to continue on with program.

Mr. DIXON. And?

General FRANKLIN. The Office of the Secretary of Defense—OSD—assessment was—

Mr. DIXON. Maybe?

General FRANKLIN. It was stronger than maybe. It was marginal that they felt that they could continue with the program and pull it through. I might say to you you are right, sir. We have spent a lot of time over the last year and a half and people before us looking at and trying to understand cutting through the fog as to what is the financial condition and how many of the issues are driven by cash flow, how many of them are serious problems.

We have seen indications that the company truly has made some changes there. For example, Ken Francis, who is the Executive Vice President for the McDonnell Douglas West Coast operations, he has increased the company's estimate at completion. They always lag ours a little bit.

It looks like the company has given him reserve in there. On the surface it looks like the problems they have had are either over the hump or about to get over the hump, but we don't have as clear visibility as we would like.

Mr. DIXON. I hear a lot of figures kicked around about how much the airplane will cost. I would say generally you can make that plane cost whatever you want it to cost to fit your own purposes. You can say it costs \$600 million or you can say it costs \$300 million, depending on what you are going to count.

General FRANKLIN. Yes, sir. If you don't baseline the ground rules, you can play a lot of games with that. This is not a \$600 million airplane.

Mr. DIXON. Finally, Mr. Chairman, I would suggest that since the financial status and viability of the company is not definite, that we have McDonnell Douglas officials here and their C-17 team. You don't know whether they will be able to produce.

At best, it is uncertain from the report that you have.

General FRANKLIN. At this point in time, I don't see any reason that they can't produce, so I wouldn't quite characterize it as iffy. Certainly there have been problems but I wouldn't at this point in time—

Mr. MURTHA. You are looking at their capability of producing. You are not necessarily looking at their financial structure.

MCDONNELL DOUGLAS FINANCIAL STRUCTURE

Mr. DIXON. That is what I was talking about.

General FRANKLIN. The crystal ball on their financing is not as clear as we would like it to be. We did not walk away with a dire assessment on their financial situation. Tight, yes, but—

Mr. McDADE. The gentleman raises an important point.

Mr. DIXON. They come and say—we weren't ever the problem—it was these other people, and they are never around except for a lobbyist or two.

Mr. McDADE. The commercial side of the house has fallen on its tail. Where are the assets that are putting the money into the cash flow? Where is it coming from? They lost a billion dollars on this one, a Navy plane. We all got assurances from the Secretary, who got assurances from the corporation—

Mr. MURTHA. A month before.

Mr. McDADE. They did the same thing with me when I was out with some of my staffers. We are looking at \$2 billion and at a downsizing in their operations and I would say nobody would buy a commercial airplane from a company in this state financially, not particularly. Where is the money coming from? Is it progress payments from the Air Force?

General FRANKLIN. No, sir. As a matter of fact—

Mr. DIXON. It might have helped at one point in time.

General FRANKLIN. I can tell you that today Douglas is carrying \$1.5 billion, which is a difference between, and that is across all the contracts they have with us on C-17. They are carrying \$1.5 billion, which is the difference between our payments and what their expenditures are.

Mr. McDADE. If you look at the balance sheet on the fixed assets, where are they generating the cash to stay in the game?

General FRANKLIN. I don't have an answer to that.

Mr. DIXON. Isn't that relevant to whether they can commit to do it?

General FRANKLIN. Sir, you are asking a very pertinent question and I don't mean to steal General Jaquish's thunder, but the discussions that we have had, there is a critical ingredient in the assessment and that is the company's willingness, the corporation's willingness, company implies just Long Beach, the corporation's willingness and ability to follow through on their commitments. We have those, but it is a very pertinent question as to their ability to do that.

Mr. DIXON. I don't want any of my comments to be construed as being against the C-17, but I think you have to ask how are they going to finance this shortfall of money, who are its lenders, is it a continuing line of credit, are there other foreseeable things that are going to cost them money?

How many lawsuits are they going to try to bring against the Air Force and if they don't get satisfaction, can they stay afloat. It seems to me those kinds of questions, unrelated to the airplane, have to be asked at some time and the person to ask, Mr. Chairman, is the management of the company, not these generals.

Mr. MURTHA. This is absolutely incisive questioning and here is a person with an economic interest. He wants to see this thing go if it can go. Five years ago I had a friend of mine who is a retired CEO do a study of five companies and McDonnell Douglas was one

of them. He said at the time there was a real question in his mind whether this company would survive.

A year ago, General Jaquish said to me he didn't know if they will be able financially to survive the next year or so. So the very line of questioning Mr. Dixon brought to the table, it is imperative to find out. Then I understand that the first production contract is going to be substantially over cost. That is information we have. Is that accurate?

General FRANKLIN. That is all part of that 2108 contract, that \$1.1 billion is both the FSD and the first two production lots.

Mr. MURTHA. And the off-the-shelf engines have experienced a 30 percent increase over prior year prices.

PRATT & WHITNEY ENGINES

General FRANKLIN. Not quite, sir. The question that we got earlier was we broke the engines out and the price on the government-furnished engines is higher than the price that Douglas paid Pratt for the initial engines by 30 percent. That is because when Douglas made their initial——

Mr. DIXON. Excuse me. I want to understand. You are saying that Douglas bought engines from Pratt & Whitney 30 percent over the Government price?

General FRANKLIN. Thirty percent below the Government price and the reason for that, our understanding is if you look at the commercial practices in the engine world, the engine manufacturers give what I call a blue light special to get—a K-Mart blue light special to an airplane manufacturer or an airline to get them to buy their engines initially. Once that introductory period is over, then they go to what is called catalog pricing——

Mr. DIXON. Which is going to cost you more for upkeep and repair.

General FRANKLIN. They cost more than the introductory engines, but we are paying the most favored catalog price for the engines.

Mr. MURTHA. Does it meet the specifications?

General FRANKLIN. It is 2.8 percent higher on fuel consumption than the specification. The rest of the specifications are being met.

Mr. MURTHA. That is the commercial one versus the one that you are buying——

General FRANKLIN. They are the same engine, sir. So there is a shortfall in what we call specific fuel consumption, which means the fuel consumption is 2.8 percent higher than what the specification says.

Mr. MURTHA. Obviously, all the conjecture that we are involved in doesn't mean a thing if the company goes bankrupt and they can't finish the contract.

Our next step will be to get the company in and see if we can find out more about their financial situation and what kind of assurances we can get from them.

MCDONNELL DOUGLAS FINANCIAL STATEMENT

Mr. DIXON. I suggest that they have a prepared statement and that it be delivered in an appropriate time before the subcommittee

hearing so that there is ample opportunity to review the statement. I am sure they will have facts and figures, but I think it is such a critical issue that they not come in and just lay down the statement for members to read maybe a week or 10 days before.

General JAQUISH. Mr. Chairman, I would also suggest for your consideration that you ask them the question whether or not the Air Force has been tough with them on dealing with the C-17, not necessarily in this committee, but there are a lot of people around here saying the Air Force has given McDonnell Douglas a walk on this thing and that we haven't been tough with them and that they have encouraged us to take tougher actions.

If you are going to take time to hear from the contractor, I think that would be a germane question. I think you would find that the Air Force has not been lax in being tough with this particular contractor to try to get performance on this program.

Mr. DIXON. But there are things that you didn't evidently know were going on.

General JAQUISH. In what sense, sir?

Mr. DIXON. In a sense the firm has not performed up to the specifications of the contract and from what you have said there have been delays in engineering, purchasing parts, etc. I assume that you didn't know that.

General JAQUISH. The point I was making is that a lot of people have a lot of theories about the C-17 at this point. One theory is people speculate that the Air Force has not been very tough on the contractor, that we should have gone for the contractor in a big way, and postures ourselves to terminate for default.

They criticize the Air Force for not being tough enough on the contractor. I would suggest you take the opportunity to find out how tough we have been. I think you will see significant efforts where the Government has been extremely tough in this case.

Mr. MURTHA. Mr. Visclosky.

C-17 TECHNOLOGY RIGHTS

Mr. VISCLOSKY. Thank you, Mr. Chairman. To follow up on Mr. Dixon's line of questioning, what happens to the technology and who has a right to it if the company fails?

General FRANKLIN. Could you ask that again—

Mr. VISCLOSKY. If the company fails, who has the right to the technology?

General FRANKLIN. I think that is over with our contract specialists.

General DREWES. We have the right to the technology. We would want to be sure of the condition of the data at the time of acceptance. We paid for the development and have the rights to the data for it. It depends on how you want to define the technology, how the technology is reduced to drawings and procedures. We have the rights to that.

Mr. VISCLOSKY. You have five planes, with a sixth to be delivered. Assuming the company goes out of business, can they transfer the technology or are we talking about having judicial protection for 10 years.

General JAQUISH. We can always go to another contractor and say build this airplane given that we have designed the airplane at very significant cost. But we would have the right to do that, sir.

Mr. VISCLOSKY. A couple of questions I have, and I am new to the issue, are, first, will there be a company to build this plane? If there is not, there is not much point in having the conversation. The other is, is the plane going to meet the criteria that the Air Force has set out. And, in your testimony you indicated that the flight test program is an area of concern and that completion date has slipped from December 1993 to January 1995.

In terms of making some key decisions, this spring and this summer, on the program, what is our exposure and our right to flight tests that aren't completed for another two years if we decide to go ahead with this program?

General CARUANA. I think one of the things we have to do is to characterize what has been accomplished in the test program and put it in context of the kind of things that can be show-stoppers when you look at a test program overall. We have cleared the operating envelope, basically where the airplane is going to fly and that is very key in the early stages of a test program, because those are the kinds of things that would generate the big changes in the airplane normally.

We have done things like take off with heavy gross weights, land with heavy gross weights, land on short field lengths, the kind of operational things we need to do. We have refueled behind KC-135s, KC-10s and these are an example of the kinds of things that have already been accomplished in the test program.

The items that will be accomplished—if you stretch out the test program and look at it in light of the reset General Franklin described, we will have less concurrency in this test program than we had before. You will be going through the final portions, albeit a lot of test data points and you won't have as high a production rate as originally.

I think what we have is a lower risk situation, which is a combination of a schedule and the test program as it has been structured.

Mr. VISCLOSKY. On the theory that you would be building less aircraft during the final phase of your testing program, in terms of range and payload, are those the criteria we have to look to when deciding whether or not this is the aircraft we want?

Are there other major criteria that we should be concerned about?

C-17 CRITERIA

General CARUANA. We have other criteria. Range and payload now is a prominent factor and one of serious consideration because of the contract requirement, but the other capabilities that the airplane has that we would test against, most of those that we have seen to date are coming along at a point where we are comfortable that those requirements will be met on the aircraft; things like being able to air drop, to open doors in flight.

The capability that the airplane has, if you look at what we are doing in Bosnia where we are dropping from C-130s, we will be

able to do that from the C-17 at a much greater load capacity. The ability to back the airplane, ability to maneuver on the ground, those are test points that go into the overall requirement to meet the user's need. So as we look at range payload, even though it is significant and not something that we discount taken as a total we see this airplane moving along very nicely towards those test points that will meet the user's requirements.

Mr. VISCLOSKY. In terms of concerns with possible deficiencies, one is about the operational scenarios under which range or payload performance is measured. Apparently the requirement is not representative of flight profiles actually flown by air mobility command crews.

Could you describe the differences between the flight profile that the AMC crews would fly on the typical mission and the profile required under the contract?

General CARUANA. One of the things that we look at is the speeds at which the airplane will operate. One of the differences is between the cruise range mach; that is, how fast the airplane goes and operationally we would fly it at .74 mach, but the contract specification is .77 mach. That is a key difference. In addition, the center of gravity; namely, the balance point of the aircraft, affects range performance when you are flying longer ranges. The further aft the center of gravity, the more efficient the airplane is aerodynamically. The specification calls for a specific center of gravity forward of where we expect to operate the airplane.

Operationally, the crews would fly further aft, which is more fuel efficient. It is usually more than 1 percent different.

When you fly a profile, for example, the specification requires us to fly a precise profile over the field and have a specific reserve and then spiral down. Operationally, you would fly within 100 or 200 miles, depending on what your conditions would allow and you would gradually let down into that air field.

All those techniques result in fuel savings and would extend your range capability. Those are basically the three differences between what we have in the specification and how crews would operationally fly those airplanes.

Mr. VISCLOSKY. Mr. Chairman, I am sure I will have many more questions.

Mr. MURTHA. Mr. Darden.

Mr. DARDEN. THANK YOU, MR. CHAIRMAN.

I appreciate your calling this timely hearing. General, you testified that the most cost-effective solution to meet the airlift requirement was and continues to be the C-17. Would you supply the Committee staff with the data base used by the Air Force to make that judgment so we can do independent analysis of our own? We have a capable and competent staff here and I would like to have them look at your numbers. It would give us, I think, a better feeling about your assessment.

General JAQUISH. The reference I have is the JCS study where the Chairman certified to the Secretary of Defense and the Secretary of Defense certified to Congress, including all the scenarios, all the data and I will make sure that you have that available to you.

[The information follows:]

The Chairman of the Joint Chiefs of Staff certified to the Secretary of Defense, and the Secretary of Defense certified to Congress that the C-17 is the most cost effective solution to meet the airlift shortfall. The supporting data for this study must be officially released to agencies outside the DoD by the Organization of the Joint Chiefs of Staff (OJCS). The OJCS is the organization that performed the C-17 cost effectiveness study, the results of which were sent to Congress on 22 September 1992. We have begun the process for release of the study and appropriate supporting data.

Mr. DARDEN. I have a schedule here dated 29 January 1986. This is the C-17 schedule. I am sure you have probably seen this somewhere before. According to this schedule, right now 25 aircraft would be complete, a mini squadron of 12 aircraft would be operational in April 1992 and a February 1994 delivery of the 40th aircraft would occur. How far are we away from having those 25 aircraft in production and the mini squadron and all these projections that were made 29 January of 1986, according to this schedule? I would like to have this entered into the record, if I could.

Mr. MURTHA. Without objection.

[The information follows:]

RESTRUCTURED BASELINE

The graph displays aircraft inventory and procurement trends from FY 1962 to FY 1964. The Y-axis represents the number of aircraft, ranging from 0 to 1000. The X-axis represents the fiscal year (FY) from 1962 to 1964. The graph includes several data series: a cumulative procurement curve (solid line), a total inventory curve (dashed line), and individual inventory curves for various aircraft types (e.g., F-4, F-105, F-100, F-104, F-106, F-107, F-108, F-109, F-110, F-111, F-112, F-113, F-114, F-115, F-116, F-117, F-118, F-119, F-120, F-121, F-122, F-123, F-124, F-125, F-126, F-127, F-128, F-129, F-130, F-131, F-132, F-133, F-134, F-135, F-136, F-137, F-138, F-139, F-140, F-141, F-142, F-143, F-144, F-145, F-146, F-147, F-148, F-149, F-150, F-151, F-152, F-153, F-154, F-155, F-156, F-157, F-158, F-159, F-160, F-161, F-162, F-163, F-164, F-165, F-166, F-167, F-168, F-169, F-170, F-171, F-172, F-173, F-174, F-175, F-176, F-177, F-178, F-179, F-180, F-181, F-182, F-183, F-184, F-185, F-186, F-187, F-188, F-189, F-190, F-191, F-192, F-193, F-194, F-195, F-196, F-197, F-198, F-199, F-200). The graph also includes a table of statistics for the aircraft types shown.

| STATISTICS | MONTHS |
|------------|--------|
| AGFT | 10.0 |
| F-1 | 14.0 |
| F-2 | 10.0 |
| F-3 | 6.0 |
| TOTAL | 97.0 |

C-17 PRODUCTION SCHEDULE SUMMARY

General JAQUISH. I would like to be able to take that and go back and provide you very specific answers. I would give you this comment. As I outlined for the Chairman early on, this program, and we got back to where the program was started in 1981 and then we had a three-and-a-half-year hiatus as we bought C-5s and then the program was restructured in 1988 due to the lack of Government funding to support the program as it was previously laid out.

Now, if you go back to the schedule of January of 1988, just a little beyond, not as far back as you, and you looked at the deliveries of the airplanes associated with the fixed price contract, the FSD airplanes, lot 1 and lot 2, they are a total of 18 months late. If you look at the first production lot, Lot 3, we are five months late. It goes back to the line of questioning we had from Mr. McDade as to where is the base line in this program? Is it 1981, no. Is it 1982, no. Is it 1985, no. Is it 1986? The answer is, no, because we have rebase-lined the program in 1988.

From our perspective that is the appropriate benchmark.

Mr. DARDEN. I would submit this to you, but according to this schedule dated January 29, 1986, we already have a mini squadron flying, and we already have 25 aircraft and less than a year from now delivery of the 40th aircraft will occur.

I would like to know where we are and I realize you can't tell us off the top of your head, but in terms of this schedule.

[The information follows:]

In January 1986, the Program Master schedule was based on a maximum production rate of 29 aircraft per year to complete a total C-17 buy of 210 aircraft in 1998. Since that schedule was developed, there have been seven budget cycles which have changed the production profile which in turn impacted program schedule. In addition, the Secretary of Defense conducted the Major Aircraft Review (MAR) in 1990 which reduced the total number of C-17 aircraft procured from 210 to 120.

A program restructure occurred in January 1988 as a result of a FY 87 funding cut. Using the point that R&D funding finally stabilized (January 1988) as a contract baseline, T-1 and P-1 to P-6 will all be completed approximately 1.5 years later than planned. The primary factors contributing to the delivery delays of these early production aircraft are: late engineering drawing releases which drive late hardware deliveries to the production line; inefficiencies in the production line due to out of position work; and evolving aircraft design.

The schedule for later production aircraft has also moved to the right, relative to the January 1986 schedule, primarily due to the 1990 MAR decision and the associated lowering of the maximum production rate from 29 per year to 16 per year. Since the MAR, the program has experienced a zero (0) buy year (FY91) and each year's procurement request has been reduced. Each of these occurrences has lengthened the overall program schedule. Using today's schedule, we anticipate completing the procurement of 120 aircraft in the year 2001.

General JAQUISH. We will provide in addition the detailed explanation of why we didn't meet those dates.

BASE LINE PLANE

Mr. DARDEN. When this program first came up a great selling point was that it didn't involve any new technology. This was current technology and one of the most desirable parts about the aircraft is it could be entered into the inventory at a reasonably quick time.

I guess your answer would be, "We have the same frustration." When do you anticipate we will have a base line plane? I under-

stand every plane is different. You have an A, a B, and a C. When do you anticipate settling on the final base line?

General FRANKLIN. The fifth production airplane is the airplane that we would base line against. There will still be changes to that, but that is what we call our functional configuration audit airplane and that established the base lines that we dealt from. Like I said, there will be some changes coming out of the flight test program, but fundamentally we think—we know what the airplane configuration is today.

Mr. DARDEN. So number 5 is your base line aircraft?

General JAQUISH. That is not uncommon for any airplane. In the first years of service you are continually catching up on the discrepancies that you discovered in flight test.

Mr. DARDEN. In one of these various studies, that go around town, it was reported that a recent Air Force concept paper entitled, "Multiservice C-17 Employment Concepts," states that the C-17 is primarily a strategic airlift aircraft that will operate primarily in the strategic mode and will operate infrequently if at all in high threat environments.

Are you familiar with this study paper? If there is one, if you would send it along to us for the record, I would appreciate it.

[The information follows:]



MAC-TRADOC

MCCDC



ACRA



MULTI-SERVICE C-17 EMPLOYMENT CONCEPT

12 DECEMBER 1990



UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
 AND
 UNITED STATES AIR FORCE MILITARY AIRLIFT COMMAND
 AIRLIFT CONCEPTS AND REQUIREMENTS AGENCY
 SCOTT AIR FORCE BASE, ILLINOIS 62225-5001

FROM: MAC-TRADOC/ACRA

SUBJECT: Multi-Service C-17 Employment Concept

TO: SEE DISTRIBUTION

1. We are providing a copy of the Multi-Service C-17 Employment Concept for your information and action. The concept describes how we believe the Services will use the C-17, based on doctrine, requirements, and the C-17's capabilities.
2. To take complete advantage of the C-17's capabilities, we must be prepared to fully implement the C-17 as it is fielded. Please use this document to review your doctrine, training, material, procedures, force structure, and plans, and make appropriate changes.
3. We encourage you to provide comments to our headquarters and directly to ACRA. ACRA will convene a joint working group in approximately one year, to reevaluate the concept and to update it as required. ACRA's address is HQ MAC/XP-ACRA, Scott AFB IL, 62225-5001. Their point of contact is Maj Nemcik, AV 576-6621, commercial 618-256-6621.

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MULTI-SERVICE C-17 EMPLOYMENT CONCEPT

1. **PURPOSE:** This concept describes how the Services will use the C-17. The concept provides a basis for actions to improve the nation's ability to deploy, employ, and sustain combat forces by airlift. The signatory headquarters will examine the concept, evaluate current employment concepts, and investigate possible changes in doctrine, training, materiel, procedures, plans, and force structure. See Appendix B for Impact Assessment.

2. **SCOPE:** This concept focuses on the C-17's unique capabilities: direct delivery to small austere airfields (SAAFs), airland of outsize and large payloads at SAAFs, airdrop of outsize cargo, and efficient use of airfield ramp space. The concept is not intended to raise issues that impact C-17 production and does not quantify requirements.

3. GENERAL:

a. **Background.** The current USAF airlift system is divided into two segments, strategic and theater (Figure 1). Strategic air movement normally transcends the boundary of any one theater and normally operates between major aerial ports, also known as main operating bases (MOBs). Theater airlift, on the other hand, supplements surface transportation for rapid onward movement of high priority units, equipment, and supplies from MOBs to other airfields within the theater. This division of strategic and theater air movements requires transferring cargo from one aircraft to another at theater MOBs. These transfers increase MOB congestion and require

time, personnel, and equipment. (Figure 1)

b. Terminology.

(1) **Air Direct Delivery—(DOD).** The strategic air movement of cargo or personnel from an airlift point of embarkation to a point as close as practicable to the user's specified final destination, thereby minimizing transshipment requirements. Air direct delivery eliminates the traditional Air Force two step strategic and theater airlift transshipment mission mix. (Figure 2)

(2) Small austere airfield (SAAF).

(a) **Description.** Normally an unsophisticated, short runway airfield incapable of C-141 or C-5 operations; usually in a forward operating area; possibly operated by nonairlift unit; typically limited in taxiway systems, ramp space, security, materials handling equipment, aircraft servicing, maintenance, navigation aids, and communications; normally associated with C-130 types of operations. A SAAF may have various surfaces including unpaved, semi-prepared compacted surface (sand, gravel) runways with a California bearing ratio of 9 or greater. A SAAF may also be an airfield or runway that is under construction, abandoned, or rendered partially mission capable due to interdiction or disrepair.

(b) **Operations.** When operational requirements dictate, C-17s are capable of operating into runways 3000 ft by 90 ft. See Appendix A for a more detailed discussion of C-17 takeoff and landing performance.

Figure 1. TRADITIONAL AIRLIFT

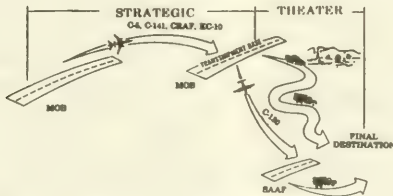
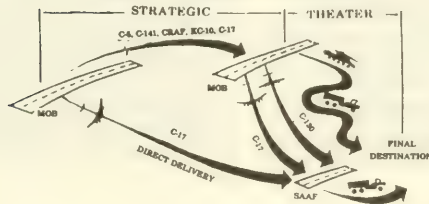


Figure 2. AIRLIFT WITH C-17



c. C-17 capabilities. (See Appendix A C-17 General Information.) The C-17 is primarily a strategic airlift aircraft which will expand cargo airlift capability while allowing retirement of some older C-141s and C-130s. The C-17 represents an important advance in airlift because it can operate in both a strategic and theater role. The C-17 will operate primarily in the strategic role. Additionally, the C-17 will augment the C-130 fleet when the situation justifies larger capacity, such as for outsize cargo, bulk ammunition, fuel resupply, or for longer range theater missions. It may also improve closure by direct delivery of forces and supplies. Generally, the C-17 offers five capabilities not available from the current airlift fleet.

(1) Direct deliver loads to SAAFs (Figure 2). C-17 direct delivery will significantly reduce the transshipment required by the traditional two step strategic and theater airlift mix.

(2) Airland outsize cargo at SAAFs. Currently only the C-5 can carry outsize cargo, and it is limited to MOBs with long permanent runways and large ramps.

(3) Airland large payloads at SAAFs. Of the larger airlift aircraft, only the C-130 is capable of operating into SAAFs. It takes approximately four C-130s to carry the cargo of one C-17.

(4) Airdrop or low altitude parachute extraction (LAPES) of outsize, single or linked platform loads weighing up to 60,000 pounds.* C-130s cannot airdrop or LAPES single or linked platform loads over 42,000 pounds. C-141s cannot airdrop single platform loads over 42,000 pounds. A limited C-5 airdrop capability is being developed for oversize single or linked platform loads of up to 60,000 pounds. However, the C-17 will be the primary airdrop aircraft for single or linked platform loads above 42,000 pounds, and it will be the only airdrop aircraft for outsize loads. The C-17 will be capable of airdropping linked platform loads of 110,000 lbs (total gross rigged weight), with a single platform limit of 60,000 lbs. (* Air vehicle specification number)

(5) Efficient ramp use. The C-17's payload, size, and ground maneuverability significantly improve the efficiency of airlift to airfields with limited ramp space. This is particularly true at airfields with ramps that are served by parallel taxiways or single entry points. The C-17 has a parking advantage over the C-141 and the C-5 at these types of airfields.

4. SURVIVABILITY AND THREAT:

a. General. Like other airlift aircraft, the C-17 is vulnerable to threats. It is relatively slow and has large infrared (IR) and radar signatures. The C-17 aircrew can enhance survivability primarily by low-level flight and other threat avoidance tactics. Additionally, aspects of its design improve the C-17's ability to operate in threat environments.

b. Enhanced survivability. C-17 ground survivability is enhanced by its rapid off-load capability

which reduces ground time and exposure to the threat. Airborne survivability is enhanced by the systems described below:

(1) System design. The C-17 design provides a level of protection against anti-aircraft fire by redundancy, separation, and masking/shielding of essentials components; by isolation of hazardous elements such as flammable fluids and oxygen containers; by armor protection of crew members and critical components; and by the use of an on board inert gas generating system for the fuel tanks.

(2) Defensive systems. A defensive systems suite is required to detect and counter hand-held IR-guided threats. When a large airlift assault is required in a significant threat area, airlift aircraft must have a force protection package, i.e., EF-111, EA-6B, or F-4G jamming and/or fighter protection. Evaluation of a selected suite against the installed performance specifications and the C-17 configuration will ensure the optimum protection in a specific threat environment. The C-17 design provides space, weight, and power provisions for a defensive systems suite.

c. Threat definitions. Threats are classified in terms of relative sophistication, not necessarily in terms of threat to the aircraft. The C-17 System Operational Concept defines the categories of threats as:

(1) Low threat. Small arms and light, optically aimed anti-aircraft artillery (AAA) up to .51 caliber equivalent weaponry.

(2) Medium threat. Low threat weapons plus optically aimed AAA heavier than .51 caliber and man portable, shoulder-fired weapons. May include more sophisticated threats employed in a dispersion pattern which makes avoidance of the threat possible with proper tactics/or defensive equipment.

(3) High threat. Includes low and medium threats plus a threat dispersion pattern which denies avoidance and requires penetration. Without suitable defensive countermeasures, tactics, and force protection, this penetration involves a high probability of detection and subsequent attrition.

d. Operations in threat environment. The C-17 will operate routinely in low threat environments, occasionally in medium threat environments, and infrequently in high threat environments. Low to medium threat environment operations require special planning, flight techniques, defensive systems, and possible tactical air support to reduce threat exposure. When the supported commander requires the C-17 to operate in a medium to high threat environment, efforts must be made to avoid the threats or reduce them by fighter/helicopter support and joint suppression of enemy air defense. The decision to expose a C-17 to threats will be a risk management decision made by the appropriate level of command such as the commander of airlift forces (COMALF), theater commander, or Joint Chiefs of Staff (JCS) depending on the situation and the threat.

e. Nuclear, biological, chemical (NBC) operations. The C-17 increases operational flexibility in an NBC environment because it can use airfields that are not contaminated but are too small for C-141/C-5 use.

5. COMMAND RELATIONSHIPS:

a. USCINTRANS-assigned forces. USCINTRANS exercises combatant command (COCOM) of C-17 forces through CINCMAC. CINCMAC exercises operational control (OPCON) through Numbered Air Force Commanders.

b. Theater support missions. C-17s engaged in strategic airlift missions may be used to conduct theater "shuttle" airlift operations before returning to strategic operations. Shuttles provide a capability which can be extremely useful for moving outsize/oversize loads and augmenting theater airlift. USCINTRANS maintains COCOM of shuttle missions supporting theater movement requirements.

c. Theater-assigned forces. JCS may assign C-17 forces to theater CINCs. Theater CINCs exercise COCOM of theater assigned forces through an Air Force component commander (AFCC) or Joint Force Air Component Commander (JFACC) if established. JFACC's exercise OPCON through an AFCC. The AFCC exercises OPCON through the COMALF.

d. Joint task forces. A theater CINC may apportion theater-assigned C-17 forces to subordinate Joint Force Commanders (JFCs). The JFC exercises OPCON of these forces through the AFCC or JFACC. JFACCs exercise OPCON through an AFCC. AFCCs exercise OPCON through COMALFs.

6. EMPLOYMENT CONCEPT:

a. General. The C-17 will perform a wide variety of air movement missions including: deployment, employment, sustainment, retrograde, aeromedical evacuation, rear operations support, and special operations. These missions and airdrop/low altitude parachute extraction system (LAPES) operations will be discussed in the following paragraphs.

b. Deployment. As used in this concept, deployment is the strategic air movement of forces, their equipment, and supplies to their initial area of operations.

(1) Direct delivery. The C-17's capability to deliver directly to SAAFs close to the battle area can reduce delivery times, reduce congestion at MOBs, and enhance operational flexibility by increasing the number of airfields that can be used for strategic deployment. Increasing the number of airfields reduces aircraft/cargo vulnerability because the enemy must target more airfields. The supported commander identifies C-17 direct delivery airfields throughout the theater. Normally, initially deploying forces will be landed as close to their employment location as the threat, airfield availability, and other factors permit. Follow-on forces may be deployed to corps, division, and occasionally brigade rear areas. During direct delivery of forces from CONUS

to theater SAAFs, the ground forces commander must be provided an en route communications package capability aboard the aircraft.

(2) Mature theater. The European Central Region is an example of a mature theater where an extensive infrastructure exists. During the reinforcement of Europe there is a requirement to rapidly airlift several divisions from CONUS. While most of their authorized equipment will be in prepositioning of material configured to unit sets (POMCUS) sites, a substantial amount of non-POMCUS items such as specialized ammunition/electronic equipment and helicopters requires airlift. As previously discussed, it is advantageous to airlift deploying forces from CONUS airfields directly to theater airfields as close as feasible to the units' objective areas. However, this is not usually possible for POMCUS units because they must link up with their equipment at the various POMCUS sites. C-17s and C-5s will deploy outsize equipment, that is not prepositioned, from CONUS to predetermined airfields near POMCUS sites. The C-17's SAAF capability expands the number of airfields available and speeds the flow of units to POMCUS linkup (Figure 3). Theater planners may split the flow, sending some elements to POMCUS sites while using the C-17 to transport non-POMCUS elements and reception units directly to initial assembly areas. As in the case of all direct delivery, this speeds closure and decreases theater movement requirements. However, theater airlift, including the C-17, could be required when surface routes are congested or interdicted, movement distances are extensive, or reaction times are short. C-17s, in conjunction with C-130s, can speed forward movement from POMCUS assembly areas by airlifting battalion or brigade size elements to within 20-40 kilometers of the forward edge of the battle area.

(3) Contingency theater. Southwest Asia is an example of a contingency theater with a limited infrastructure. The Army and Marines have organized light combat force packages for rapid deployment by air. During a contingency, the C-17 could deploy such forces from CONUS directly into the theater, frequently to SAAFs. Depending on the situation, the C-17 can be used to airdrop/airland assault elements of an airborne brigade to secure airfields. A brigade size unit of light combat forces is a credible initial force which may require reinforcement. The threat may require the airlift of a battalion size armor or mechanized force to augment the light assault force before the main force arrives. Further augmentation by air defense, artillery, engineer, and aviation units could be required to ensure the survivability of these forces. All of these units, to include light forces, have outsize cargo that require the C-17 for airlift to SAAFs. Strategic airlift may also deploy ground forces to an intermediate staging facility a significant distance from the operational area. With its outsize and SAAF capabilities, the C-17 will augment onward deployment.

Figure 3. AVAILABLE STRATEGIC AIRFIELDS



(4) **C-17 self deployment.** An all active-duty C-17 squadron would have the capability to self deploy and conduct theater missions. Deployed C-17s may operate through SAAFs, but will recover at established operating bases for servicing, maintenance, security, and aircrew management.

c. **Employment.** As used in this concept, employment is the air movement of forces from their initial area of operations to another area of operations within the theater. With the C-17's ability to operate into and from SAAFs with outsize cargo, theater employment airlift will no longer be restricted to light forces. Although the C-17 requires only slightly more airfield ramp space than the C-130, it will carry four times the payload. This capability improves efficiency where ramp space is limited. While shuttle missions are extensions of the strategic flow, the C-17 will augment theater airlift by performing shuttles. JCS may also assign C-17s solely for theater use; however, this may degrade strategic capability.

(1) **Mature theater.** In mature theaters, the C-17 can augment surface transportation or theater airlift.

(a) **Light forces.** Light infantry, airborne, and air assault units are the most frequently airlifted combat forces in a theater of operations. Because of their limited organic transportation these forces must be delivered as close as possible to the actual area of operations. Although predominately transportable by helicopters and C-130s, some elements of light forces include outsize equipment. The C-17's capability to airlift this equipment to SAAFs enhances combat mobility.

(b) **Heavy forces.** The C-17 will provide

added mobility for heavy combat forces at the tactical level and especially at the operational level of war. The C-17's outsize and SAAF capability enhances the commander's ability to influence the battle by rapidly repositioning heavy combat forces throughout a theater of operations. The C-17 aircraft could move heavy forces in the following ways:

1. Airlift up to a heavy brigade.

The C-17 will most likely be used to air transport brigade size and smaller combat forces. Small units of armor, mechanized infantry, or cavalry can provide the edge in combat power, especially when employed against lighter enemy forces. The C-17's ability to on-load and off-load heavy units at SAAFs allows the use of multiple pick up and landing fields for rapid unit movement, without dependence on ground lines of communications (GLOCs).

2. Supplement surface movement.

C-17 airlift can be used to supplement transportation when heavy forces must move rapidly over extended distances. This decreases closure time, GLOC congestion, demands on surface transportation, and wear on heavy equipment. The C-17 can also be used to introduce lead elements to provide security or reception for follow-on forces moving by surface.

(c) **Support forces.** The C-17, with its outsize and SAAF capability, facilitates movement of combat support and combat service support units to critical points in support of combat forces. Forces such as artillery and engineers are often key multipliers of combat power.

(2) **Contingency theater.** In contingency theaters, C-17 support of light forces is required at

both the tactical and operational levels. Because of the limited logistical infrastructure in a contingency theater, airlift will carry a larger portion of the overall transportation requirements. The C-17 outsize and SAAF capabilities enhance the ability to move blocking or attacking forces into critical areas. Also, the C-17's capability to airdrop and LAPES outsize and heavy loads, as well as airdrop of personnel, may be critical to support movement of forces into austere areas.

d. Sustainment. As used in this concept, sustainment is the continuous movement of replacement personnel, equipment, and supplies from logistical points of origin to receiving units. The C-17 will enhance sustainment and reconstitution by direct delivery of large loads to SAAFs and drop/extraction zones. These operations are particularly challenging because they bypass current resupply and reporting channels.

(1) Direct delivery. After normal sustainment lines of communications are operational, the C-17's primary unique sustainment capability is direct delivery to SAAFs. This capability increases the possibility of throughput from CONUS to corps support areas (CSA), division support areas (DSA), and brigade support areas (BSA). Increased throughput reduces delivery times, main operating base congestion, and surface movement requirements.

(a) To CSA: The C-17 will routinely direct deliver supplies to the CSA.

(b) To DSA: The C-17 will occasionally direct deliver supplies to the DSA. This is because of increased threat and the difficulty of handling and managing large loads associated with strategic throughput.

(c) To BSA: Although the C-17 is capable of operating into airfields associated with the BSA, it will infrequently direct deliver supplies to the BSA. This is due to the degree of threat, the fact that BSAs may not be located at airfields, and the difficulty of handling large loads at the BSA.

(2) Mature theater. In a mature theater, where a supporting transportation infrastructure is available, surface transportation will move most supplies to forward areas. Airlift will supplement surface transportation when GLOCs are interdicted or saturated. For time sensitive missions, airlift could be the preferred mode of transportation to move critical spare parts, equipment, and malpositioned cargo. C-17s will supplement C-130s for these missions, especially where large/outsize loads are required.

(3) Contingency theater. Where lines of communication are limited, forces may require continuous airlift for sustainment. Initially, airlift may deliver up to 100 percent of supplies, often to SAAFs. When airlift requirements are extensive, the C-17 enhances sustainment with its capability to transport four times the payload of the C-130 and carry outsize cargo.

(4) Specific sustainment roles of the C-17. The unique capabilities of the C-17 are most

efficiently used for movement of vehicles and large bulk supply. However, it can also perform other airlift missions and will supplement other aircraft in performing these missions. Some examples are:

(a) Delivery of personnel. The C-17 can carry up to 102 personnel; however, it is unlikely the C-17 will be used to transport only personnel. Most configurations of material loads allow the inclusion of a number of equipment operators/crews, as well as critical replacement personnel.

(b) Redistribution of critical supplies/equipment. The C-17 will augment the C-130 in emergency redistribution of critical supplies/equipment between corps or larger organizations over long distances.

(c) Emergency resupply. The C-17, with its greater payload, airspeed, and range can perform theater emergency resupply missions more quickly than the C-130. Primary requirements will be for fuel and ammunition; however, water, rations, critical repair parts, barrier materials, major end items, and medical supplies may also be required. The C-17 makes possible the direct delivery of critical supplies (e.g., smart munitions) from CONUS to the combat area. This direct delivery requires a highly integrated and responsive command, control, and communications system. The threat or nonavailability of airfields may require emergency resupply by airdrop.

(5) Support requirements. Sustainment operations at SAAFs may require logistical support personnel and material handling equipment with adverse terrain capability. Routine delivery to SAAFs could require the attachment/assignment of terminal transfer elements and movement control elements, or their equivalents, to facilitate airfield clearance and forward movement of supplies. These elements should possess a high level of mobility if responsible for numerous airfields.

(6) Movement control. Theater commanders manage C-17 deliveries within their theaters. Theater supply/transportation agencies, such as the Army's Movement Control Agency and the Materiel Management Center, must know about all shipments, their destinations, and contents for efficient supply management. This information is needed to ensure that personnel, equipment, and supplies are routed to meet tactical changes. These operations become particularly challenging when supplies are direct delivered from CONUS to the requesting unit, bypassing the current resupply and reporting channels. Logisticians must have near real-time communications to meet this challenge.

e. Retrograde. As used in this concept, retrograde airlift is movement of people and cargo on the return leg of deployment, employment, and sustainment missions. The most common retrograde requirements are return of critical equipment and materiel for repair or recycle, noncombatant evacuation operations (NEO), movement of remains, and enemy prisoners of war (EPW). Aeromedical evacuation is covered in paragraph 6f.

(1) Equipment. The C-17's capability to retrograde outsize equipment from SAAFs throughout the theater adds a dimension not previously available.

(2) NEO. The demand for NEO airlift will occur primarily during the early stages of a conflict. In most cases, noncombatants will be evacuated from overseas theaters to CONUS by strategic airlift, primarily Civil Reserve Air Fleet (CRAF). During NEO the military communities are responsible for transporting noncombatants to designated airfields. In the event of insufficient warning, the C-17 is an alternate mode for NEO because it can operate from SAAFs and travel transoceanic distances. The C-17 could also augment the C-130 in moving noncombatants to their designated departure airfields.

(3) Movement of remains. The remains of deceased personnel will be moved from forward areas to burial sites in theater or to designated airfields for shipment to CONUS. To expedite the movement, airlift will usually be the preferred means. The C-17, conducting a theater shuttle mission, can accomplish some of these missions.

(4) EPW. EPW must be rapidly evacuated from combat areas to preclude interference with combat operations and to comply with Geneva Convention requirements. The C-17 can augment the theater C-130s during in-theater movement of EPWs or assist in evacuating EPW out of theater.

f. Aeromedical evacuation.

(1) The C-17 may be used to augment other MAC and dedicated medical CRAF aircraft for the movement of patients to medical treatment facilities. This aircraft will have an integral capability to configure for 12 litter and 54 ambulatory patients. With additional litter kits, the litter capacity can be expanded to 48. USAF aeromedical evacuation personnel will plan for and provide en route patient care on medical evacuation flights.

(2) Theater movement of patients will normally be from corps airfields to airfields located in the communications zone. When US Army medical evacuation assets operating in the divisional area are overtasked, C-17 aircraft operating with MAC aeromedical crews into BSAs can reconfigure to evacuate patients to airfields servicing communication zone medical treatment facilities. The C-17 can also augment the strategic evacuation of patients to medical facilities located in CONUS.

g. Rear operations support. The C-17's capability to operate from SAAFs allows the use of C-17s

for the strategic movement of forces required to counter threat forces operating in US rear areas. The movement of intact rear area response forces, or elements of tactical combat forces (TCF) to operate against these threats allows the force commander additional flexibility in planning for forces and methods of countering the threat. Using C-17 aircraft, these forces could be deployed or employed as a complete unit into SAAFs closest to identified threat forces.

h. Special capabilities. The mission may require specially configured C-17 aircraft and special qualified crews.

(1) C-17 capability. The C-17's capability to direct deliver all categories of equipment into SAAFs enhances special operations of all Services. The rapid movement of special operations forces (SOF) units, such as rangers, with all combat equipment and helicopters would provide additional flexibility to SOF commanders during direct actions or counter terrorist operations. Using C-17 aircraft, the special forces operational base (SFOB) could be deployed or employed as a complete unit into SAAFs. SFOBs include outsize items such as signal center equipment. The C-17 could also be used during foreign internal defense operations to move outsize engineer equipment and other cargo in support of indigenous combat forces.

(2) SOF sustainment. C-17s may be used to sustain SOF units located at various depths within hostile territory, by either airland or airdrop operations. Also important to SOF sustainment, the C-17 can transfer large quantities of aviation fuel (JP4/JP8) from its wing tanks or any fuel from on-board bladders, to bulk transport vehicles or storage bladders. Furthermore, the C-17 could be employed as a fuel tanker providing hot-refueling points for SOF aviation.

i. Airdrop operations. The C-17 has both theater and strategic importance because its airdrop capability is a significant improvement over that of the C-130, C-141, and C-5. Besides the ability to drop 102 parachutists in an airborne operation, the C-17 can deliver supplies/material at speeds up to 235 knots (design goal of 250 knots) and as low as 300 feet with the enhanced CDS system. Additionally, it is the only aircraft that can airdrop outsize loads or LAPES loads weighing between 42 and 60 thousand pounds. It also has the capability, with its enhanced navigation and formation avionics, to accurately airdrop in adverse weather conditions, day or night. (See Appendix A).

APPENDIX A

C-17 INFORMATION

1. General characteristics (See Figure A-1).
 - a. Length 174 ft
 - b. Wingspan 171 ft
 - c. Height 55.1 ft
 - d. Max payload 172,200 lbs
 - e. Box size: Length - 88 ft, width - 216 in, height 148 in.

2. Mission profiles.
 - a. Maximum payload - 160,000 lbs/2,400 NM unrefueled.
 - b. Medium logistics - 120,000 lbs/2,800 NM unrefueled.
 - c. Ferry range - 4,600 NM unrefueled with zero payload.

NOTE: Inflight refueling capable.

3. Altitude/speeds.
 - a. Initial cruise - 26,000 ft pressure altitude/74 Mach.
 - b. Airdrop - 300 ft AGL to 25,000 ft pressure altitude/approximately 130 to 235 KIAS (design goal 250 KIAS).
 - c. Low level - 100 to 500 ft AGL/300 KIAS.

4. Ground flotation.
 - a. Paved - load classification number not greater than 48 with a payload of 120,000 pounds and fuel to fly 500 NM plus reserves with zero payload.
 - b. Unpaved - Capable of operating, landing, or taking off on designated unpaved, semi-prepared compacted surface (sand, gravel, etc.) runways with a California bearing ratio 9 or greater (50 passes) with a payload of 81,115 pounds and fuel to fly 500 NM plus reserves.
 - c. Damaged pavement - Capable of operating from damaged or emergency repaired runways with bomb craters repaired to within 2 inches of original surface and over gravel strewn payment.

5. Takeoff/landing performance (sea level, 90°F).
 - a. Max gross weight takeoff - 8,500 ft paved runway with maximum payload profile (payload: 160,000 lbs; range 2400 NM).
 - b. Small, austere airfield takeoff - Capable of takeoff from a 3,000 ft long by 90 ft wide paved run-

way at the gross weight to carry 75,000 lb deliverable payload 500 NM.

c. Normal landing - Capable of landing on a 4,000 ft long by 90 ft wide paved runway with a payload of 160,000 lbs and fuel to fly 500 nm plus reserves with zero payload.

d. Maximum payload landing - Capable of maximum effort landings on a 3,000 ft long by 90 ft wide load classification group IV paved runway with a payload of 160,000 lbs and fuel to fly 300 nm plus reserves with zero payload.

6. Ground maneuvering.
 - a. Turning - capable of 180 degrees turn around in 90 ft using three point star turn.
 - b. Backing - capable of backing up a 1.5 percent grade on paved surface with 160,000 lb payload and fuel for 1,000 NM.
 - c. Minimum Runway Width - capable of routine operations from 90 ft wide runways.

7. Cargo rail system.
 - a. Logistic rail system capable of carrying 18 463L cargo pallets in a double row configuration (88 inch bias).
 - b. Aerial delivery system capable of carrying up to 11 463L pallets in a center row configuration (108 inch bias).

8. Passenger configuration is 54 without centerline seats, 102 max for both airland and airborne operations.

9. For aircraft comparison charts and type load diagrams see Figures A1-A10.

SOURCE: HQ MAC/XP C-17 System Operational Concept, dated 11 April 1988; and HQ MAC/DO C-17 Employment Concept of Operations, 15 March 1990; and the HQ MAC/XR C-17 System Operational Requirements Document (SORD) 002-91-IIIB, dated 23 May 1991. Some numbers may change as the aircraft is developed and tested.

NOTE: This appendix is for information only and should not be used for air mission planning.

USAF/MCDONNELL DOUGLAS C-17A

MAX T.O. GROSS WEIGHT 580,000 LB
 MAX PAYLOAD 172,200 LB
 MAX FUEL CAPACITY 176,200 LB

CARGO COMPARTMENT

WIDTH 18.0 FT
 LENGTH (USABLE) 88.0 FT
 HEIGHT (AFT OF WING) 13.5 FT
 (UNDER WING) 12.3 FT

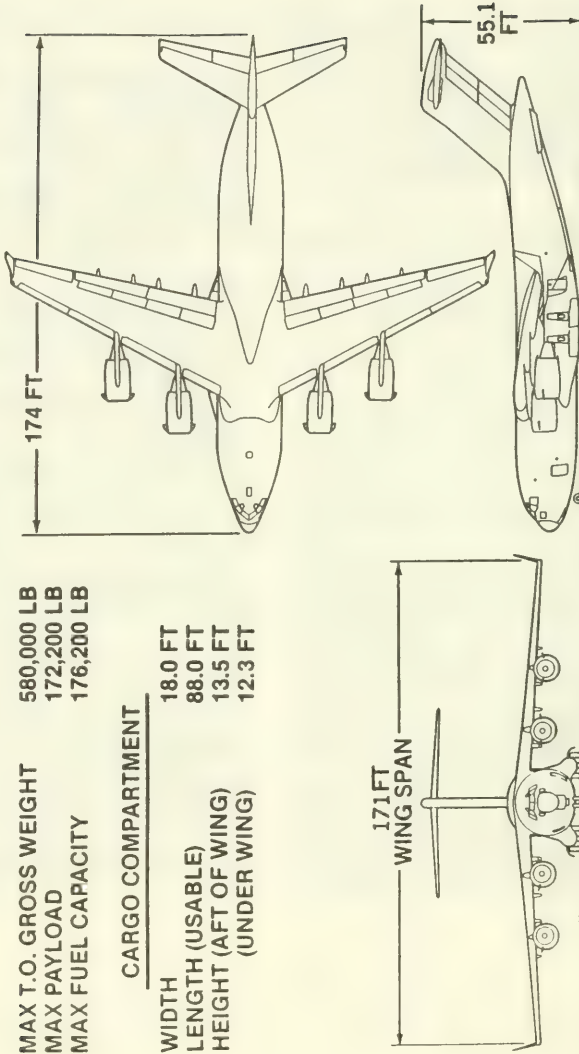


Figure A-1

C-17 CARGO COMPARTMENT DIMENSIONS

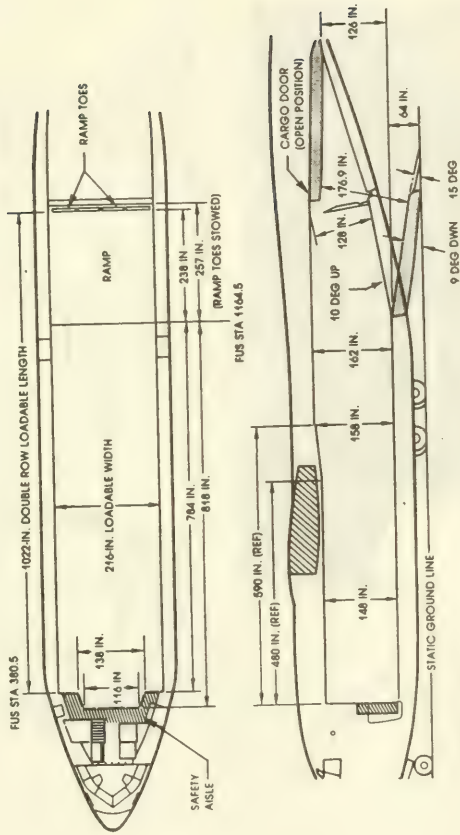


Figure A-2

C-17 CARGO COMPARTMENT DIMENSIONS



TWO 5-TON EXPANSIBLE VANS LOADED
SIDE BY SIDE WITH 6-INCH CLEARANCES

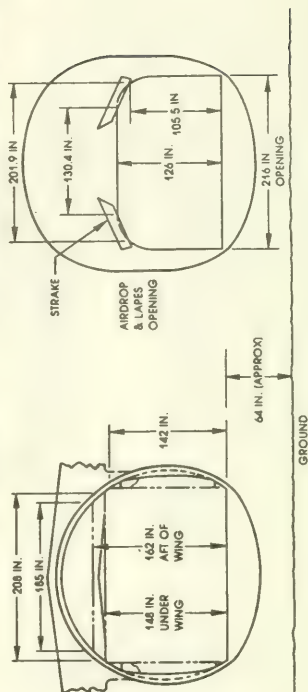
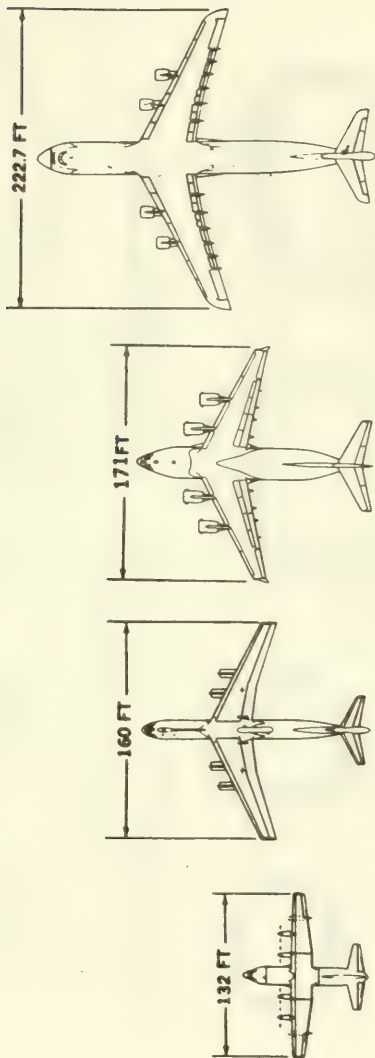


Figure A-3

C-17 SMALL ON THE OUTSIDE

A-5



C-130

- LIGHT PAYLOADS
- SHORT RANGES
- SMALL AIRFIELDS
- OVERSIZE CARGO
- 50,000 LBS

C-141

- LIGHT PAYLOADS
- LONG RANGES
- LARGE AIRFIELDS
- OVERSIZE CARGO
- 89,000 LBS

C-17

- HEAVY PAYLOADS
- LONG RANGES
- SMALL AIRFIELDS
- OVERSIZE CARGO
- 172,000 LBS

C-5

- HEAVY PAYLOADS
- LONG RANGES
- LARGE AIRFIELDS
- OVERSIZE CARGO
- 291,000 LBS

Figure A-4

LARGE ON THE INSIDE

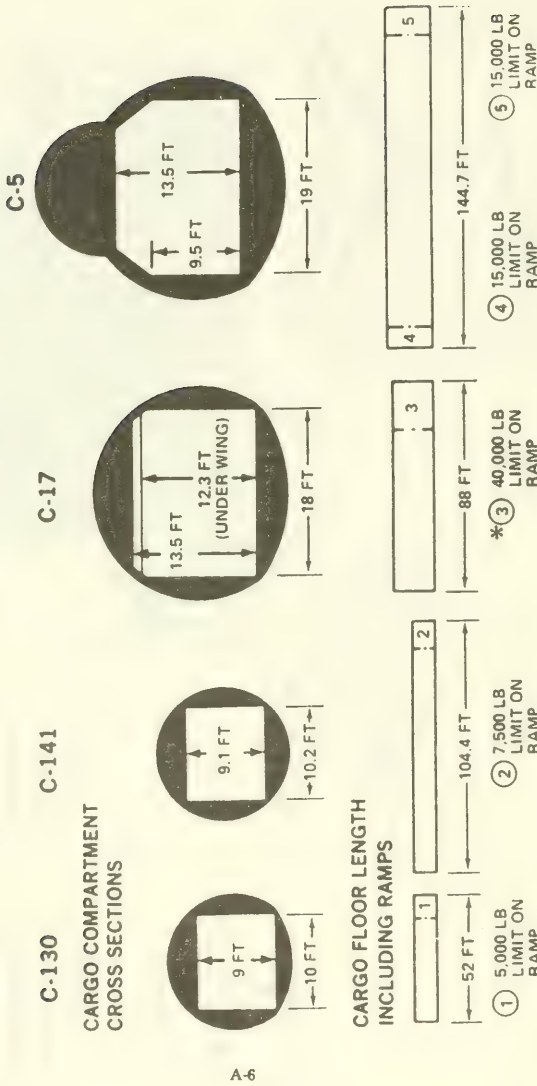


Figure A-5

SIZED FOR EFFICIENT LOADING OF THE ENTIRE MIX OF ARMY VEHICLES

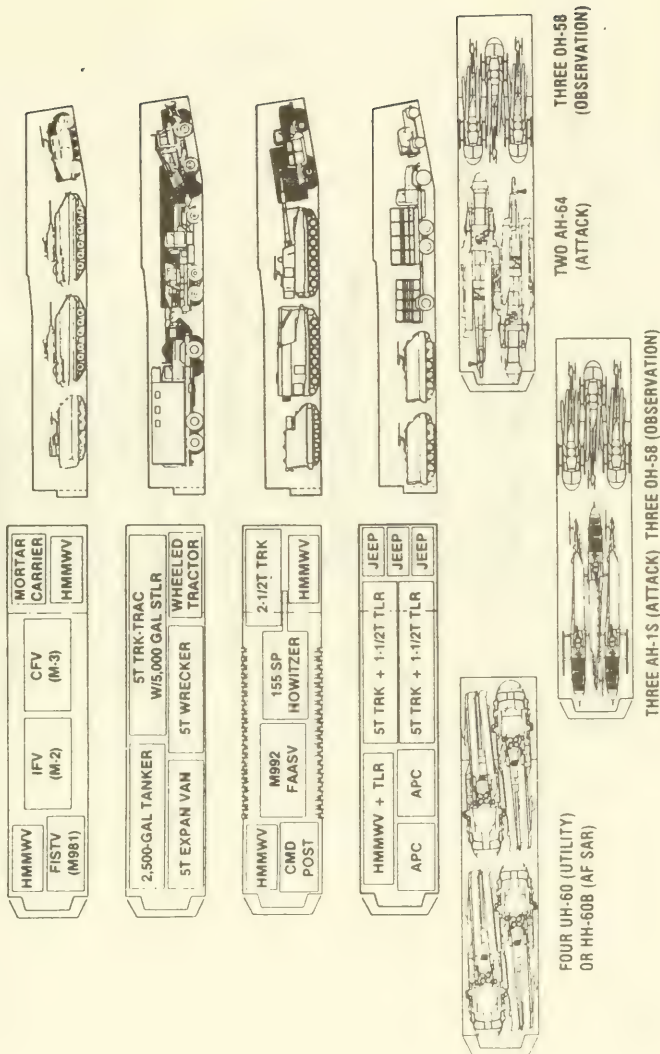
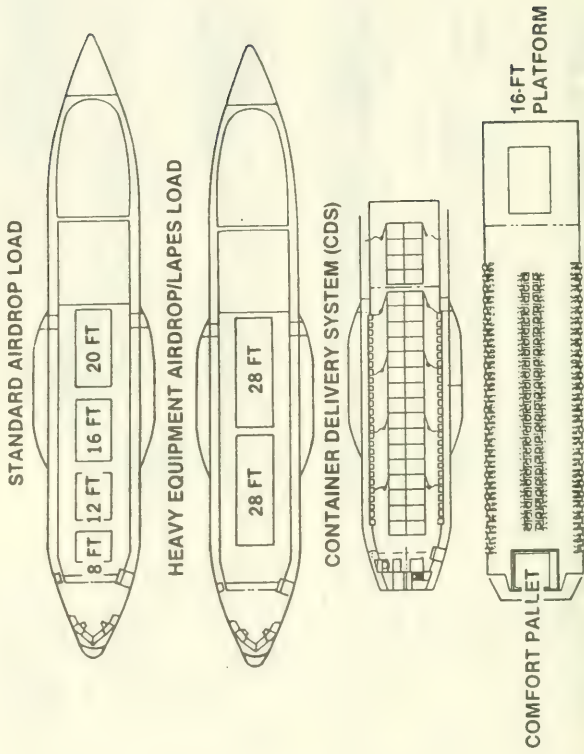


Figure A-6

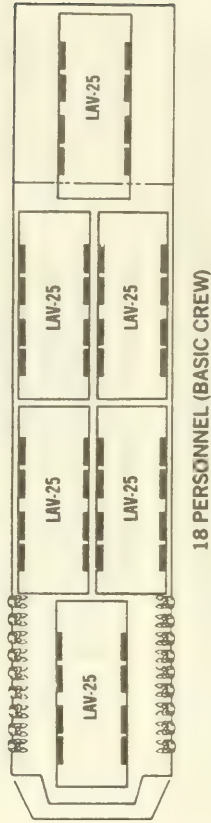
C-17 AIRDROP CONFIGURATIONS



A-8

Figure A-7

C-17A ONE C-17 DELIVERS SIX COMBAT LOADED LAV-25's



A-9

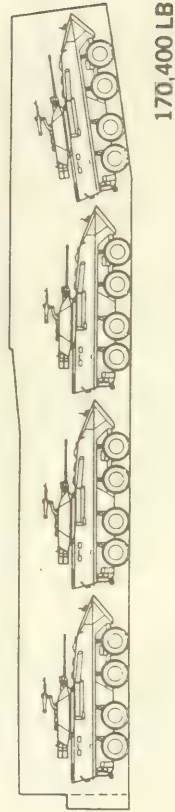
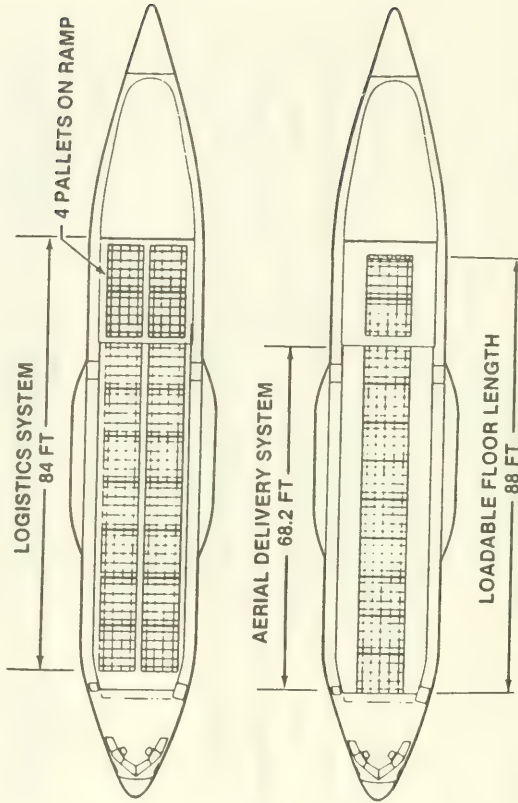


Figure A-8

C-17 PALLETIZED CARGO CAPABILITY



A-10

Figure A-9

APPENDIX B

IMPACT ASSESSMENT

1. **PURPOSE.** This annex identifies potential impacts of the C-17 on existing doctrine, training, materiel, procedures, force structure, and plans. Services should use this document to examine their functional areas and initiate changes as required. Numbers in brackets, following item headings, reference the relevant paragraph in the concept. Letters in parentheses, at the end of each paragraph, identify which Service(s) may be affected (A=Army, AF=Air Force, and MC=Marine Corps).

2. DOCTRINE.

a. Direct delivery. [3.b.(1)] The term direct delivery has been regularly used in relation to the C-17 with no clear definition. Services should incorporate the definition in this concept into appropriate doctrinal material. (A, AF, MC)

b. Small austere airfields (SAAF). [3.b.(2)] The term SAAF has been regularly used in relation to the C-17 with no clear definition. USTRANSCOM/MAC should incorporate the SAAF definition in this concept into appropriate doctrinal material. (AF)

c. Operations in threat environment. [4.d.] Information similar to that in this paragraph should be incorporated into appropriate doctrinal material. (A, AF, MC)

d. Command relationships. [5.] The guidelines for operations and command and control of airlift forces which include the C-17 should be incorporated into appropriate doctrinal material. It is particularly important to clarify procedures for tasking and managing C-17s involved in theater shuttle missions. It is also important to clearly define circumstances and procedures where operational command of C-17s would transfer to the theater or where theater request for C-17 support would result in modification of the strategic flow. (AF)

e. Airlift of POL. [6.d.(4)(c) and 6.h.(2)] Due to the significant increase in theater POL airlift capability provided by the C-17, Services should consider modifying POL transportation doctrine to include increased use of airlift. (A, AF, MC)

f. Direct delivery of supplies. [6.d.] Appropriate doctrinal material should be modified to reflect the guidelines in the paragraph. (A, AF, MC)

g. Movement control. [6.d.(6)] Services should modify supply management systems to facilitate direct delivery of supplies. (A, AF, MC)

h. Retrograde. [6.e.] Services should examine and modify doctrine to reflect use of the C-17 in retrograde movement of equipment, NEO, human remains, and EPW. Factors such as known threats will limit ground time and the types of items being on loaded. (A, AF, MC)

i. Special operations. [6.h.] The Army and Air Force, in coordination with USSOCOM, should incor-

porate into appropriate doctrinal material the concepts for use of the C-17 in support of special operations. (A, AF)

j. Airdrop/LAPES. [6.i.] Services should modify doctrine to incorporate the capability of the C-17 to airdrop and LAPES loads that are outside or weigh between 42,000 and 60,000 pounds. This effort should include identifying specific loads. (A, AF, MC)

k. Engineer support. Services should examine doctrine to determine if additional engineer support is required for C-17 operations. (A, AF, MC)

3. TRAINING.

a. General. The unique capabilities of the C-17 and the concepts outlined in this document must be exercised regularly and refined. The C-17 should be incorporated into command post exercises, at least two years before aircraft initial operational capability; it should be incorporated into field training exercises as soon as practical. Direct delivery, airlift deployment/employment of light/heavy forces and command and control of C-17s should be exercised during theater operations. The Services should work together to streamline airlift request procedures and command, control, and communications. (A, AF, MC)

b. Special operations. [6.h.] The Air Force should plan for and provide special operations training to required C-17 aircrews and support personnel. (AF)

c. Airdrop/LAPES. [6.i.] The Air Force should plan for and provide airdrop/LAPES training to required C-17 aircrews. (AF)

4. MATERIEL.

a. Airlift of POL. [6.d.(4)(c)] Considering the potential increased capability provided by the C-17, Services should work with their theater component commands to determine requirements for POL airlift. The Services then need to examine their available systems for use in POL airlift. For example, the currently fielded Aerial Bulk Fuel Delivery Systems belong to the Tactical Air Command and may not be available to others. If additional systems are required, the Services should take steps to obtain them. (A, AF, MC)

b. Survivability. [4.b. and d.] The Air Force must ensure that appropriate threat detection/avoidance systems are installed in C-17s to allow operations in threat environments as outlined in this concept. (AF)

c. Nuclear, biological, chemical operations. [4.e.] Effective procedures and equipment should be developed to decontaminate both the interior and exterior of the C-17, along with any personnel, supplies, or equipment that may become contaminated and

require airlift on the C-17. Planners should consider the impact of contaminated personnel, supplies, and equipment upon airlift operations. (A, AF, MC)

d. Airdrop/LAPES. [6.i.] Services must develop systems and other equipment to allow LAPE and airdrop of specified loads up to 60K. (A, AF, MC)

e. Supply direct delivery. [6.d.(1)(4)(5)(6)] Services should examine their aerial port, transportation, and equipment to determine if any adjustments in material are required to handle and manage the direct delivery of supplies to CSAs, DSAs, BSAs, or their equivalents. (A, AF, MC)

f. Palletized loading system (PLS). [6d.(1) (4) (5)(6)] Services should develop a PLS flatrack which will directly interface with the 463L rail system. (A, AF)

g. Aeromedical Evacuation. [6f.] When assessing overall aeromedical evacuation requirements, Services should recognize the limited integral aeromedical capabilities (e.g., onboard litter kits) currently planned for the C-17. (A, AF, MC)

5. SUPPORT INFRASTRUCTURE.

a. Supply direct delivery. [6.d.(1)(4)(5)(6)] Services should examine their aerial port, transportation, and support structures to determine if any adjustments in force structure (personnel and equipment) are required to handle and manage the direct delivery of supplies to CSAs, DSAs, BSAs, or their equivalents. (A, AF, MC)

b. SOF support. [6.h.] USTRANSCOM, in coordination with USSOCOM, must determine what portion of its C-17 fleet will be equipped for SOF support. (AF)

c. Force modernization. [6.i.] Services should review their force structure and make changes to take advantages of the additional airdrop/LAPES capability of the C-17. The 60,000 pound/outsize airdrop capability should be considered in equipment acquisitions. (A, AF, MC)

d. Airdrop. [6.i.] The Army should review and restate its division ready brigade and other airdrop requirements, considering possible use of airdrop for outsize loads and single platform loads which exceed 42,000 pounds. The Marine Corps should also review its airdrop requirements. The Air Force should determine the mix of C-130, C-141, C-5, and C-17 aircraft/aircrews needed to support airdrop/LAPES requirements. (A, AF, MC)

6. PLANS. [6.] USTRANSCOM/MAC and theater war planners should consider the new capabilities available with the C-17 and adjust plans for deployment, employment, sustainment, and retrograde of forces to take advantage of these capabilities. Planners should survey C-17 capable airfields and consider direct delivery of units and supplies into these airfields. Planners should also consider reorganization of aerial port, supply, engineer, and transportation elements to support use of these airfields. (A, AF, MC)

APPENDIX C

ACRONYMS AND ABBREVIATIONS

| | |
|---------------|--|
| A | Army |
| AAA | anti-aircraft artillery |
| ACRA | Airlift Concepts and Requirements Agency |
| AF | Air Force |
| AGL | above ground level |
| APOE | aerial port of embarkation |
| BSA | brigade support area |
| CINCMAC | Commander in Chief Military Airlift Command |
| COMALF | Commander Airlift Forces |
| CONUS | Continental United States |
| CRAF | Civil Reserve Air Fleet |
| CSA | corps support area |
| deg | degree |
| DSA | division support area |
| EPW | enemy prisoner of war |
| FL | flight level (in thousands of feet) |
| ft | feet |
| GLOC | ground lines of communication |
| HQ | headquarters |
| in | inches |
| IR | infrared |
| JCS | Joint Chiefs of Staff |
| K | pounds in thousands |
| KLAS | knots indicated air speed |
| km | kilometers |
| LAPE | low altitude parachute extraction |
| LAPES | low altitude parachute extraction system |
| lbs | pounds |
| MAC | Military Airlift Command |
| MC | Marine Corps |
| MHE | materials handling equipment |
| MOB | main operating base |
| NBC | nuclear biological chemical |
| NEO | noncombatant evacuation operations |
| NM | nautical mile |
| OPCOM | operational command |
| OPCON | operational control |
| POL | petroleum, oils, and lubricants |
| POMCUS | prepositioning of materiel configured to unit sets |
| PLS | palletized loading system |

| | |
|------------------|--|
| SAAF | small austere airfield |
| SFOB | special forces operational base |
| SOF | special operations forces |
| TRADOC | Training and Doctrine Command |
| USAF | United States Air Force |
| USSOCOM | United States Special Operations Command |
| USTRANSCOM | United States Transportation Command |

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General CARUANA. We can comment on the fact that the air mobility command commander has put out the concept of operations and clarified in what theaters this airplane would operate and how it would operate.

If ever it operates in anything above what would be considered a low threat, there are appropriate actions that the theater commander and the air component commander would take to protect the assets, because we would never put an airplane in harm's way without providing all the support necessary.

There is a concept of operations that the using command would bring to any theater of operations and that would be employed by that theater. That is how we worked in Desert Shield/Storm, as well, because we had to put C-130s forward into a situation that was above potentially just a low threat.

Mr. DARDEN. A number of groups interested in defense policy have stated some very, very great reluctance about the C-17 going into any hostile environment because of its tremendous expense, and I appreciate your input there.

Finally, Mr. Chairman, if I might impart a short anecdote to the group here to make one point and then I will be through. Several years ago Congressman Bilbray, Senator Reid and I attended a field hearing in the State of Nevada and we went to Las Vegas first, and Ely. We were in Ely walking around one evening and I asked them whether it was true that they had legalized houses of prostitution in the area.

Senator Reid reported that they did. So during our walk we walked around and I asked if they would show me one. Not that I was interested in going in, but I wanted to see a legal house of prostitution. We walked around and went down this road, and Congressman Bilbray pointed out this location.

In front, it had a sign saying, "Welcome. Come in. Under new management." So I have got some concerns about the fact that new management will cure everything that happens here with the C-17 program and I would submit that you not put all your eggs in that new management basket because that, in and of itself, I don't think is going to alleviate our problem.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. McDade, any further questions?

Mr. McDADE. No further questions.

Mr. MURTHA. Thank you very much. How many Air Force people do you have with you today? General McPeak says he is getting rid of a lot of people in Washington. How many do we have from Air Force?

General JAQUISH. Some may work outside of the Air Force.

Mr. MURTHA. How many stationed here in Washington? How many active duty stationed in Washington? I want to see if General McPeak got rid of everybody.

General JAQUISH. Ask them how many would like to be stationed in Washington, Mr. Chairman.

Mr. MURTHA. I know the Navy is moving in that direction and I thought the Air Force already had and somebody was doubting the fact that the Air Force was really moving as precipitously as I was representing it.

This is certainly one of our vital hearings this year and we appreciate very much the frank testimony. We will meet with McDonnell Douglas and I am sure have some conversation this year. Thank you very much. Please answer the Committee questions for the record. The Committee is adjourned until tomorrow at 10:00.

[CLERK'S NOTE.—Questions submitted by Mr. Dicks and the answers thereto follow:]

C-17 AIRCRAFT PROGRAM

Question. General, the contract for the C-17, which included full scale engineering and development phase and the first six aircraft is approximately 96 percent complete. Recent reports have indicated that there are cost over runs up to \$1 billion. Since the government will pay only up to the ceiling price, is McDonnell Douglas paying all of these costs above the ceiling?

Answer. Yes. Contract F33657-81-C-2108 is a fixed price incentive contract with a ceiling price (i.e., maximum cost to the government) of \$6.7 billion (B). The contractor is responsible for paying all costs incurred above this ceiling price. The current Air Force cost estimate to complete the "2108" contract is \$7.8 billion, which means the contractor is responsible for paying the \$1.1 billion incurred above the ceiling price. In other words, the contractor will lose approximately \$1.1 billion under this contract. The contractor has written off approximately \$800 million of this loss in its financial statements over the past three years.

Question. It is my understanding that the development of the C-17 is over 95 percent complete, this would make the risk to the government quite low—especially compared with the risk of SLEPing the aging aircraft that have shown signs of extensive wear and tear, and corrosion problems.

Answer. That is correct, development work on the C-17 is largely complete with the remaining development efforts primarily test program items.

The C-17 program has been shown to be more cost effective than other airlift modernization alternatives including service life extension programs for existing airlift aircraft. The Secretary of Defense's September 1992 certification to Congress documented this position. At this point, we believe completion of the C-17 program is the lowest risk, and lowest cost alternative.

Question. In recent reports, we have read deficiencies in the program, and you mentioned in your testimony that the Air Force is focusing on resolving these problems. Do these deficiencies discovered during the test program have defined solutions? Can you elaborate on this for the Committee?

Answer. The only major C-17 specifications that currently have a potential for not being met are the range payload specifications. Specifically, initial flight test results indicated a 9,775 pound (−6.1 percent) or 224 nautical mile (−9.3 percent) shortfall in meeting the C-17 critical payload/range requirement of carrying a 160,000 pound payload a distance of 2,400 nautical miles (includes an additional 2,000 pounds aircraft weight for planned wing, slats, and flaps fixes). The apparent shortfall was determined through analy-

sis of initial cruise test data and can be attributed to increases in design weight, thrust specific fuel consumption, and baseline drag. The Government withheld \$4.233M on delivery of aircraft P-5 (March 12, 1993) due to this shortfall. Efforts and improvements being sought by the Air Force to alleviate the shortfall include: Weight reduction efforts (expect approximately 1,400 pounds reduction); Engine Specific Fuel Consumption (SFC) improvements (expect .6 percent improvement); potential aerodynamic improvements to reduce overall drag coefficient (-1.3 percent); proposed increase in maximum operating weight (580,000 to 585,000 pounds) to allow additional fuel); review of aircraft range/payload specification versus operational requirements; and possible increase use of composites.

Low risk recoveries (weight reduction, engine SFC, max operating weight, and drag) can reduce the shortfall to 2,134 pounds (-1.3 percent) or 50 nm (-2.1 percent). A change in the flight profile for mission accomplishment is also a low risk (noncomplex and no costs) consideration, and its use would totally eliminate the remaining payload shortfall. This option is not yet being used in the payload calculations but is under consideration because it is more representative of the way HQ AMC operates its aircraft.

There are additional areas where the current design is deficient. Some of these include wing structural strength, flap and slat integrity in extreme thermal environment, and several minor deficiencies discovered early in flight test. McDonnell Douglas is contractually required, and has implemented actions, to resolve these deficiencies and meet specification requirements, including retrofitting previously delivered aircraft.

Question. I believe we all agree that our new, smaller, CONUS-based military will require responsive airlift. Can you provide some rough comparison for the C-17's capabilities versus today's older fleet in scenarios such as the Somalia and Bosnia operations.

Answer. In Somalia, if the C-17 had been available for Operation Restore Hope, throughput per day at Mogadishu, could have nearly doubled. Moreover, the C-17 would not have been limited to major airfields, thus enabling a wider and more rapid dispersal of food and medical supplies. In other words, the C-17 could have relieved the chokepoint at Mogadishu by allowing the option of direct delivery of cargo to airfields that currently only the C-130 can access.

In regard to Bosnia, the C-17 would be the optimum aircraft for this type of humanitarian relief operation. Using C-17's in place of C-130's would both increase the payload delivered and decrease the number of crewmembers exposed to the risk involved during the airdrop operation. The C-17 has more than three times the cargo carrying capability and only requires three crewmembers, whereas the C-130 requires six crewmembers.

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks. Questions submitted for the record and the answers thereto follow:]

WING FAILURE

Question. On October 1, 1992, both wings on the C-17 static test article failed undergoing limit load testing at approximately 128% of a 150% limit load requirement. The Air Force and the contrac-

tor have formed an Executive Independent Review Team (EIRT) to review the results and recommendations of a contractor engineering team also formed to address the problem of the wing failure. Bring the committee up to date on the status of the EIRT's findings and final recommendations concerning the wing failure.

Answer. The EIRT presented its findings and recommendations to the acting Secretary of the Air Force on February 26, 1993.

The EIRT's findings were: the test article was within specifications; no anomalies were found in the test procedure; the causes of the failure were (1) error in detail analysis of the upper wing surface structure, (2) optimistic methodology to determine allowable stress, and (3) a slight effect of uneven distribution of test loads; repair of the test article appears feasible; and there was a range of technically acceptable repair options from a complete structural repair to employment of an active load control system (ALCS), which is a method of reducing actual wing loads through software controls.

The EIRT recommended the Air Force select from the technically acceptable options, two of which would impose no restrictions on the user: full structural modification of the wing and a limited modification with limited ALCS. The Air Force selected and is implementing the full structural modification option to bring the wing up to its full original strength requirement.

Question. What are the impacts to the program in terms of static testing, the flight test schedule, and production?

Answer. The static test article is currently being repaired/modified. Static testing will have been delayed for about 9 months when the testing is resumed in July 1993. The wing modification for P-1 and P-4 will entail removal from the flight test program for 75 days and 45 days respectively. Regression testing for the wing fix is estimated at 30 test hours or 0.7 aircraft months. Thus, the total impact to flight test is an additional 4.7 aircraft months. There will be labor inefficiencies in production due to the additional rework hours that will be added to each aircraft that requires out of position installation (P-11 to P-15).

Question. At what point will resumed static testing confirm that the wing fix meets the limit load requirement?

Answer. Structural qualification of the wing fix, to verify static strength requirements, is planned to be accomplished by testing the repaired static test article. Testing will resume in July 1993. The static article is expected to complete flight loads testing by 30 October 1993 and ground loads testing by 30 December 1993. We estimate that aircraft P-1 (first aircraft to complete the wing retrofit) will begin flight loads testing at 100 percent on 1 November 1993, upon completion of the flight loads portion of the static test. Currently all test aircraft are flying up to 80 percent limit load. P-1 is planned to clear flight and ground loads testing on 1 February 1994.

Question. What is the total cost estimate for wing redesign and retrofit for the first 10 production aircraft?

Answer. For the full structural modification as the static wing problem fix, the cost to the contractor for design, development, and retrofit of the first 10 production aircraft is estimated at approximately \$40-50 million.

Question. What additional weight will be added to the plane as a result of the wing redesign?

Answer. The additional weight for the steel strap retrofit configuration is about 750 pounds. The weight for the "productionized" configuration is yet to be determined, but will be less than the steel strap retrofit.

WING FLAP/SLATS

Question. Two other significant technical issues on the C-17 concern the leading edge wing slats and the trailing edge wing flaps. Both the flaps and the slats are susceptible to heat damage from the engine exhaust which in turn places limits on C-17 flight testing. Describe to the Committee the technical difficulties concerning the wing flaps and slats.

Answer. The C-17 powered lift system forces hot exhaust gases over the wing flaps to increase lift and lower the approach speed. During reverse operations, exhaust gases are directed over the leading edge slats by the engines thrust reversers to slow or back the aircraft. Ground and flight tests indicate higher than anticipated temperatures were experienced on the flaps and slats due to exhaust impingement (heat). As a result, portions of the flaps, when extended past 20 degrees, and the slats, during above idle reverse operations, were found to be susceptible to damage due to the high temperatures.

Question. What design approaches are being considered to correct these deficiencies?

Answer. For the flaps, the solution involves a flap redesign using titanium skins, in place of aluminum, in areas where high temperature indicate it's required. For the slats, the solution is replacing sections of the skin and parts of some wing ribs with titanium skin over titanium ribs.

Question. Describe the impact to the overall program of these deficiencies in terms of:

Limits to the current flight test program;

The production plan;

Additional aircraft weight and;

Operational capability.

Answer. Pyrope heat shields were designed and installed on T-1 and P-1 as an interim flap fix to allow testing to continue. Tests show these shields are effective and will allow unrestricted flap use. We estimate production cut-in of the redesigned flaps will take place on aircraft P-13. Aircraft P-1 through P-12 will then be retrofitted with the production fix. The production fix will allow unrestricted operational use and will result in a weight increase of about 700 pounds per aircraft which is already included in current weight estimate.

Removable heat shields are being used in areas of exhaust impingement on the slats. This interim solution allows for continued flight test (ground operations) and minimizes test impact. A design solution which will allow unrestricted operational use is in hand and will be incorporated as a production fix by aircraft P-16 and will then be retrofitted on aircraft P-1 through P-15. Weight increases as a result of the production fix is estimated to be 230

pounds per aircraft and, like the flaps, is already included in current weight estimate.

Question. What is the total cost of correcting these particular problems including the retrofit of the first production lots?

Answer. McDonnell Douglas costs for correcting the flap/slat deficiencies are estimated to be \$30 million to \$40 million which includes development of the fixes and installation on all aircraft currently on contract (through P-10). Government costs (production) are estimated to be \$220 million to \$265 million for aircraft that currently do not have a contract delivery date. These changes will be included as part of each succeeding aircraft lot negotiation.

LANDING GEAR

Question. On February 7, 1993, the Combined Test Force at Edwards AFB discovered a crack in the right forward main landing gear on the first C-17 procurement aircraft (P-1). On February 12, 1993, the left forward main landing gear of the first test aircraft (T-1) failed while being towed at Edwards. All C-17 aircraft had flight testing activities suspended pending analysis of data gathered during inspection of the landing gear. Describe to the Committee the exact nature of the landing gear problem.

Answer. The parts that failed were the main landing gear trunnion collars which allow the landing gear to rotate while functioning as an attachment point for the gear support structure. Analysis of the fracture surfaces of the failed parts indicated they were subjected to elevated temperatures either during manufacture or during operation. The most probable cause of the high temperature was excessive landing gear shimmy which occurred on P-1 and T-1 during landings early in the test program. Both aircraft, and all other subsequent aircraft, have since had shimmy dampers added to the landing gear to eliminate the vibration.

Question. Have the cracks or failures been discovered on any other aircraft beside those mentioned?

Answer. No. We have not found landing gear trunnion collar failures on any other aircraft.

Question. What analysis is currently being conducted to isolate the cause of the landing gear fault? What is the proposed fix and its cost?

Answer. The failure analysis, testing, and root cause assessment were completed in early Mar 93 and have isolated the problem to main landing gear shimmy. The proposed fix was to install shimmy dampers on all aircraft at no cost to the Government. T-1 and P-1 were the only C-17 aircraft operated without shimmy dampers.

Question. Has flight testing resumed without restriction? What was the total test schedule delay attributable to the landing gear fault?

Answer. Following the finding of a trunnion collar failure on P-1, all C-17 aircraft were suspended from flight test pending a failure investigation. The restriction was formally lifted on 3 Mar and the flight test program has resumed without-in-flight or ground operating restrictions due to the trunnion collar. However, some increased maintenance inspection procedures are being followed until lubrication levels are determined to be adequate.

The following identifies the total down time for each aircraft:

| | <i>Days
downtime</i> |
|-----------------------------------|--------------------------|
| T-1 resumed flying on 13 Mar..... | 33 |
| P-1 resumed flying on 2 Mar..... | 22 |
| P-2 resumed flying on 10 Mar..... | 30 |
| P-4 resumed flying on 5 Mar..... | 25 |
| Total | 110 |

While a total of 110 days of flight test downtime can be attributed to the trunnion collar failure, the time was not lost to the program. During his non-flying period, each aircraft had some of the remaining deferred work accomplished that would have required future downtime for completion.

ENGINE PROGRAM

Question. As you know, each C-17 aircraft is powered by four F117 engines. The F117 is simply the Air Force designation of a commercially available engine (known as the PW 2040) which has long been in service with private airfleets on a worldwide basis. According to information provided to the Committee, 560 of these engines have been delivered to various airlines with a total of 1,200 under firm order. In other words, the performance characteristics and cost history of this engine are well known and the manufacturer's business base exclusive of the C-17 requirement has been significant. Please explain any differences between the engine being installed on the C-17 and the commercially available equivalent?

Answer. Commonality between the F117 engine and Pratt and Whitney's commercial variants is best measured on the basis of the commonality of the design or appearance of specific parts rather than on the basis of part number. Often part numbers are changed to prevent intermixing commercial and military parts rather than because of physical difference. On the basis of design and appearance, current commonality exceeds 95 percent.

Differences between the F117 and the PW2040, Pratt and Whitney's commercial equivalent, are often the result of specific military needs that do not exist in the commercial application. For example, the F117 contains a thrust reverser control, additional gearbox gears for a second hydraulic pump, and larger capacity alternator than the PW2040. Likewise, the F117 fan cases are titanium rather than steel and its fan exit guide vanes are of a composite material rather than aluminum as in the PW2040.

Other differences between the F117 and PW2040 result from differences between the aircraft in which the engines are installed. For example, wiring harnesses, installation plumbing, brackets, bleed ports, and other items are different on the C-17 than on the Boeing 757 aircraft.

Question. Describe to the Committee what the exact specification requirements are for the F117 engine in terms of weight and specific fuel consumption (SFC). What are the deviations from these requirements currently?

Answer. Both the Air Force and McDonnell Douglas contracts with Pratt and Whitney require the dry engine weight not exceed

7,100 pounds when assembled with specified standard equipment. Currently, all government furnished equipment (GFE) and all but six commercially furnished equipment (CFE) engines meet the 7,100 pound weight specification.

Thrust specific fuel consumption (TSFC) specifications are more difficult to express concisely since they vary with thrust setting, altitude, ambient air temperature, and mach number. The current engines deviate from the TSFC requirements at altitude cruise conditions by about 2.5 percent. Variation around this figure is approximately ± 0.5 percent depending upon whether an engine is an early production or more recent delivery and on the method used to determine performance at altitude. The latter factor is still under review and discussion by the Air Force, McDonnell Douglas Aerospace, and Pratt and Whitney.

Question. What percentage of the overall C-17 range/payload deficiency is attributed to the engine?

Answer. The current range/payload shortfall, as measured against the requirement to fly a 160,000 lb payload 2,400 nautical miles, is 9,775 lbs (6.1 percent) or 224 nm (9.3 percent). If the engine's specific fuel consumption (SFC) specification were fully met (it currently exceeds the spec by 2.8 percent), the range/payload shortfall would be 6,159 lbs (3.8 percent) or 145 nm (6.0 percent). Therefore, the percentages attributable to the engine are 2.3 percent for payload and 3.3 percent for range.

Question. Is it accurate to state that the Air Force is currently accepting engines from the manufacturer on waiver from performance specifications?

Answer. No. To date, only one engine (engine 50) has been accepted on a waiver. This engine encountered excessive high pressure turbine rub due to an automatic clearance control valve malfunction during acceptance test, and therefore did not meet the acceptance criteria. Since this was a spare engine, it was decided to use this engine as a training engine. In addition to repairing the engine's clearance control valve, additional consideration was requested by the Air Force and granted by the manufacturer in lieu of requiring turbine clearance refurbishment.

The Air Force's contract with Pratt and Whitney recognized a specific fuel consumption (SFC) shortfall existed and subsequently divided the contract line item (CLIN) for engines into two parts. The first subCLIN buys the basic engine and allows "initial acceptance" based on the contractor meeting all specification requirements except for those related to thrust specific fuel consumption. The price of this subCLIN is the negotiated engine price less an amount withheld for the second subCLIN. The second subCLIN requires the contractor to retrofit the engine as necessary to meet the engine specification in its entirety. At the time this second subCLIN is paid, the engine must meet the "final" acceptance criteria in the engine specification.

The contractor, in the engine price negotiations, has been assessed a "fuel burn penalty" which considers the price of the excess fuel that the Air Force must buy until the engines are retrofitted and achieve the fuel burn requirements as contained in the engine specification.

Question. Please explain to the Committee the Air Force rationale for acquiring a commercial piece of equipment, with known performance characteristics, that does not meet specification.

Answer. The offerors for the C-17 program were strongly encouraged by the initial Request for Proposal to use commercial off-the-shelf engines in their proposed system designs; in fact, all did. The reason for this was to take advantage of commercially available technology to reduce the development cost and risk to the C-17. Originally designed as a commercial engine, the F117 engine was newly developed and untested at the time of C-17 source selection in 1981. The commercial version of the engine was certified by the FAA in 1983, and began service in December 1984 in the Boeing 757. Based on commercial service, Pratt and Whitney started a "Fuel Burn Improvement" (FBI) program in 1988 to eliminate a 2.2% specific fuel consumption (SFC) shortfall. It wasn't until a December 1990 altitude test of the improved "FBI" engine that Pratt and Whitney and the Air Force learned the SFC shortfall had not been eliminated.

Question. What are the realistic options for upgrading the engine's specific fuel consumption (SFC) efficiency?

Answer. Currently, the engines are performing at about 2.8 percent above (worse than) spec. Pratt & Whitney is improving the engine SFC by .6 percent for both the Air Force and their commercial customers. This new configuration will first be delivered in 1994. The Air Force is currently evaluating possible courses of action: (1) Upgrading the engines only to the "1994" configuration (.6 percent SFC improvement), assuming SFC specification relief to this level, or (2) Upgrading the engine to the current specification level, which would require changes to the engine. Potential design changes include block upgrades for which there is no commercial interest. Full spec compliance would not be expected until 1997. Retrofit impacts and costs (both to the Air Force and the contractor) are significant.

ENGINE PROCUREMENT

Question. Starting with the spares and the trainers requirement for the third production lot of aircraft, the Air Force has contracted directly with the engine manufacturer for the acquisition of C-17 engines. Previously the engines were supplied by sub-contract to the C-17 contractor. According to the Committee's investigative staff the unit cost of the F117 increased by 30 percent at the time the Air Force began to procure engines directly from the manufacturer as government furnished equipment (GFE). Is this accurate?

Answer. No, the first engines procured by the Air Force directly from Pratt & Whitney as GFE were for use in training and as spares with delivery in FY92. The average unit cost for those engines was only 3.5 percent higher than the last price paid by McDonnell Douglas. The GFE purchase of installed engines for Lot 4 (P-11 through P-14) to be delivered in FY93 did not benefit from any introductory discounts and as a result showed an additional price increase over the GFE engines purchased for delivery in FY92.

Contractor furnished equipment (CFE) engine prices for the first eleven aircraft (T-1 and P-1 through P-10) were established at

source selection based on an "introductory pricing" agreement between McDonnell Douglas and Pratt and Whitney. This introductory price had a deep discount from the catalog price, and the arrangement was used to incentivize the Prime's use of this engine for at least the first 52 production engines.

The GFE cost is capped at the "not-to-exceed" (NTE) catalog price. The GFE prices reflect a basic "most favored customer" discount which assures Air Force and commercial customers will pay comparable prices. The increased scope of the engine specific fuel consumption fixes and the loss of the commercial customer used as a basis for determining the Air Force's "most favored customer" discount resulted in the Air Force paying catalog price for Lot 4 engines to be delivered in FY93. This resulted in an increase of approximately 23 percent over the cost of GFE engines delivered in FY92. In addition, approximately 7 percent of the increase over the CFE price paid for engines delivered in FY92 is attributable to inflation.

Question. Since the purpose of acquiring sub-components of a system as GFE is to reduce costs by eliminating overhead and fees associated with the prime contractor can you explain the reasons for this cost increase?

Answer. Standard commercial practices include introductory prices which offer substantial discounts from the catalog prices for (1) the first buyer of a new engine, and (2) "new" customers adding the new engine to an airframe. McDonnell Douglas did obtain an introductory price for the early engines in the program. In fact, the introductory price continued through the first 2 trainers bought as GFE by the Air Force. The current Air Force contract with Pratt & Whitney stipulates that the Air Force will get a package deal whose value (including consideration for unique features) is as good as or better than that received by the best commercial customer, and that price will not exceed the current commercial catalog price.

The basis for engine price determination is a combination of catalog prices and a series of adjustments. McDonnell Douglas' target mark-up on CFE (contractor furnished equipment) engines was approximately 13 percent. The avoidance of this mark-up on GFE engines results in savings to the Government. Comparing the price of the initial F117 engines (purchased as CFE) to the price of follow-on engines (lots IV and beyond purchased as GFE) is to a valid "apples to apples" comparison because of four primary factors that impact follow-on (Lot IV and beyond) engine prices whether purchased as GFE or CFE:

(1) The easiest change to understand is the continuing price increase due to inflation, which is driven by the Economic Price Adjustment (EPA) clause that is part of the commercial pricing methodology. Prices are EPA adjusted to the month of delivery.

(2) The most significant change was the increase due to changing from the "Introductory" discount level to a "Follow-on" discount level. This included a change in base price (from 1980 catalog price to 1988 catalog price) as well as a change in the amount of "Fleet Introductory Assistance" (a price concession that is the equivalent of a discount).

(3) The next most significant change was a reduction from Lot III to Lot IV in the most-favored-customer discount due to the Air

Force. This was caused by the cancellation, after Lot III negotiations, of a very favorable commercial buy used to establish the Air Force discount. The Air Force most-favored-customer discount then reverted to the next "most favored" discount.

(4) Finally, significant change also resulted from the better (later) definition of F117 unique changes needed to meet the F117 specific fuel consumption (SFC) specification. These changes increased the value of the F117 relative to the airline engine, offsetting the available discount.

Question. Explain in general and provide details for the record on the Air Force's negotiating strategy in acquiring commercial engines for the C-17.

Answer. The use of commercial engines was envisioned in the original C-X (C-17) acquisition strategy. The F117 engine was originally selected as the power plant for the C-17A during the competitive source selection of the C-17 during 1981. The F117-PW-100 engine is based upon the PW2037/2040 engines which are FAA certified and configured for use on the Boeing 757 aircraft. Additionally, the acquisition strategy always included a planned breakout of the engine with the intent that breakout would reduce overall costs. The negotiation strategy to acquire C-17 engines is to use commercial pricing practices. The engine is sold in substantial quantities to the general public at an established market (catalog) price. The government is entitled to and receives most-favored customer status (i.e., largest discounts). Additionally, the Air Force has negotiated agreements with Pratt and Whitney to limit the growth of the catalog price to inflation only for the life of the program and to provide a minimum 10 percent discount on all future spare parts purchased by the Air Force. Engines for aircraft Lots IV and V have already been negotiated with Lot IV on contract and Lot V to be definitized later this fiscal year.

Question. For the record, provide the average unit cost to the Government of the engines provided for the first 10 production aircraft. Also provide the average unit cost by fiscal year of all engines provided under direct contract to the Air Force.

Answer. Determining the average unit cost to the Government for engines purchased by McDonnell Douglas Aerospace (MDA) for the first 10 production aircraft is difficult due to the nature of the Air Force contracts with MDA. The first 10 production aircraft (to include installed engines) were purchased under fixed price incentive (FPI) contracts with MDA. These FPI contracts include a target price and ceiling price (130 percent of target cost). The engines are not separately priced in these contracts. As a result we can only estimate the actual unit cost to the Government for these engines. The following estimates are based on prices from contracts directly between Pratt and Whitney and MDA, plus MDA's profit to target. All estimates are in then-year dollars.

[Dollars in millions]

| Lot | Use | Qty | Unit price | MDA profit to target (in percent) | Average cost to government | Delivery year |
|-------------------------------------|---------------|-----|-------------------|-----------------------------------|----------------------------|---------------|
| 1..... | Installs..... | 8 | \$3.91 | 13.0 | \$4.42 | 1989 |
| 2..... | Installs..... | 16 | ¹ 3.95 | 13.0 | ¹ 4.46 | 1990 |
| 3..... | Installs..... | 16 | 4.14 | 13.7 | 4.71 | 1991 |
| 3..... | Spares..... | 4 | 4.05 | 7.2 | 4.34 | 1991 |
| Average unit costs by the Air Force | | | | | | |
| 3..... | Trainers..... | 2 | \$3.98 | N/A | \$3.98 | 1992 |
| 3..... | Spares..... | 3 | 4.46 | N/A | 4.46 | 1992 |
| 4..... | Installs..... | 16 | ² 5.27 | N/A | ² 5.27 | 1993 |
| or 5.86 with worst-case EPA | | | | | | |

¹ With an aircraft-quantity-related "bonus" (called "FIA," Financial Introductory Assistance—a "concession") this price was reduced to \$2.73 million (or \$3.08 million including the 13 percent MDA profit to target).

² Negotiated contract provisional billing price using DRI (Data Resources Inc.) projection of inflation. The final Economic Price Adjustment (EPA) is determined from actual Bureau of Labor Statistics indices.

Question. If present cost trends continue, is it feasible to consider another commercially available engine for the C-17?

Answer. In 1988 the Air Force considered a competition between the Pratt and Whitney F117 engine and the Rolls Royce RB211-535E4 engine, the Pratt and Whitney engine's direct competitor in the Boeing 757 commercial application. Both the C-17 and the RB211 control system would have required substantial redesign to integrate the engine into the aircraft. The cost estimate for the integration effort was roughly one-quarter billion dollars. In April 1990 OSD conducted a Major Aircraft Review which decreased the planned C-17 buy from 210 to 120 aircraft. This, of course, directly affected the number of engines required for the C-17 program.

The Air Force continues to evaluate options and alternatives in light of the planned 120-aircraft program and potential foreign military sales. Most recently, the Program Executive Officer has requested Air Force Materiel Command to lead an independent review to determine if the Rolls Royce engine is a viable alternative. This review will address what would be required to integrate the Rolls Royce engine into the C-17, including an assessment of cost, schedule, and risk. The results of this review are expected in mid-to-late summer of 1993.

ENGINE MANUFACTURER

Question. The engine manufacturer is currently involved in negotiations with the prime contractor to "buy out" the specific fuel consumption requirement for the engines installed on the first 10 production aircraft. Are you aware of these negotiations?

Answer. The C-17 Program Office is aware of the negotiations between McDonnell Douglas Aerospace and Pratt and Whitney; however, it has not been nor will it be involved in those negotiations.

Question. Will the Air Force be informed of the final terms of these negotiations?

Answer. McDonnell Douglas Aerospace has no legal or contractual obligation to inform the Air Force of the final terms of the negotiations, should they be reached. The C-17 Program Office will,

however, request a top-level briefing on the outcome. Considering the good working relationship the Air Force enjoys with the contractor, it is likely that we will be informed of the details of the final agreement.

Question. Has the engine manufacturer made a similar offer to the Air Force?

Answer. The Air Force Government Furnished Equipment (GFE) engine contract with Pratt and Whitney recognizes the potential for specification relief. The Air Force would agree to change in that contract if McDonnell Douglas Aerospace grants like specification relief to Pratt and Whitney. Appropriate consideration, subject to negotiation between the Air Force and Pratt and Whitney, would have to be provided to the Air Force.

The Air Force has not yet asked Pratt and Whitney for a proposal to change the specification in the GFE engine contract and would prefer the McDonnell Douglas Aerospace/Pratt and Whitney negotiations be completed first to ensure no impact to total system performance responsibility.

Question. What financial consideration is the government contractually entitled to from the manufacturer for engines not meeting the specific fuel consumption (SFC) specification?

Answer. For the first 10 production aircraft, the Air Force is due consideration from McDonnell Douglas if the aircraft do not meet a system performance specification of which engine performance is one contributing factor. For aircraft P-11 and beyond, the engine manufacturer is delivering government furnished equipment (GFE) engines that meet "initial acceptance" criteria with the provision that the engines will be retrofitted to meet all specification requirements. If the manufacturer fails to meet specification requirements or the Air Force grants specification relief, the government is entitled to, and will obtain, consideration. On an interim basis, the contractor, in the engine price negotiations, has been assessed a "fuel burn penalty" which considers the price of the excess fuel that the Air Force must buy until the engines are retrofitted and achieve the fuel burn (specific fuel consumption) requirements contained in the engine specifications.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, MAY 5, 1993.

McDONNELL DOUGLAS CORPORATION

WITNESSES

JOHN F. McDONNELL, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, McDONNELL DOUGLAS CORP.

HERBERT J. LANESE, EXECUTIVE VICE PRESIDENT AND CHIEF FINANCIAL OFFICER, McDONNELL DOUGLAS CORP.

DAVID O. SWAIN, SENIOR VICE PRESIDENT FOR TRANSPORT AIRCRAFT, McDONNELL DOUGLAS CORP.

GEORGE FIELD, VICE PRESIDENT, GENERAL MANAGER, DESIGN AND TEST, C-17, McDONNELL DOUGLAS CORP.

INTRODUCTION

Mr. MURTHA. The Committee will come to order. Today we welcome Mr. John F. McDonnell, Chairman and Chief Executive Officer of the McDonnell Douglas Corporation and his colleagues to testify on the status of the C-17 program and the overall financial picture at McDonnell Douglas.

Gentlemen, if you will identify yourselves and briefly summarize your statements, we will then proceed directly with questioning.

Mr. LANESE. I am Herb Lanese and I am the Chief Financial Officer of McDonnell Douglas, Mr. Chairman.

Mr. SWAIN. David Swain, Senior Vice President for Transport Aircraft, and I lead the C-17 program.

Mr. MURTHA. As you know, this Committee has supported the C-17 for years. I personally have supported it and the Committee has approved the requested funding for a number of years.

I don't remember exactly when the C-17 started, but I can remember when they terminated it, and I know it has been resurrected since that time. It has gone through a very troubled time. We asked the Air Force a number of pointed questions when they appeared before the Committee, and they disclaimed much of the responsibility for the program's troubles. They felt it wasn't their fault; according to them it was McDonnell Douglas' fault. They also felt they needed a commitment from the parent company to provide the financial resources necessary to execute a successful program.

I have asked Mr. Visclosky and Joe McDade has assigned Mr. Skeen to this particular project, so I will start out by asking you to make a statement, if you would, and then ask Mr. Visclosky to lead off with any questions he has and then turn to Mr. Skeen and then the rest of the Committee will ask questions.

Mr. McDonnell, anything that you have to say, we would be glad to listen.

SUMMARY STATEMENT OF MR. McDONNELL

Mr. McDONNELL. I appreciate being here today.

I would like to start off with an introductory statement to try and paint an overall framework of where I think we are and then we are pleased to respond to questions.

What I would like to be able to accomplish today is to convince you and the committee that McDonnell Douglas is financially viable and that we are firmly committed to and able to perform the C-17 program.

I represent 78,000 people at McDonnell Douglas. That is 78,000 strong now, It is actually 57,000 less than it was 3 years ago.

We have gone through a very tough period as have all aerospace companies in the last several years. We are a proud company. We have a strong heritage. We have been a pioneer in aerospace for our history.

We produced the first viable commercial airliner in the DC-3. We produced the first all-jet carrier-based fighter, the Phantom 1. We produced the first manned capsule in space, the Mercury. That goes down to today when I believe we still build the best aircraft in the world, the F-15, F-18, AV-8B, T-45, C-17, MD-11, and MD-90, the newest of our commercial airliners.

Over the last four years, we have been through a very difficult period where we have had to invest more than \$5 billion of our own money in four programs, C-17, A-12, T-45, and MD-11. That is a lot of money for us to invest over a four-year period.

We raised that money from three sources. One is we increased our debt by about a billion dollars from \$1.8 billion up to \$2.8 billion by the end of last year.

We sold off assets, primarily information systems businesses, and received proceeds of about a billion dollars from that.

Th other more than \$3 billion we raised through internal cash flow by very tough management actions and performing very well with all of our other programs. Some of the management actions that we have taken in the last four years to achieve that more than \$3 billion of internal cash flow are we have reduced our total work force by more than a third. We have cut capital spending by 55 percent. We have cut expenses like travel by a half.

We have consolidated a number of our facilities. We have actually closed down some facilities in order to get better utilization of others.

We have consolidated organizations in order to reduce overhead. We, in fact during this period of time, while in a declining business environment, we have actually reduced our overhead faster than our business has gone down.

That is very unusual in a reducing business environment.

We have successfully managed our other programs in order to achieve that \$3 billion or more of internal cash flow.

Where do we stand now on those four programs?

The C-17, we will be getting into much more detail with that here. We are through the largest part of the investment that we have to make in the C-17 program. We are still investing more this year. We may have to invest more next year, but it should be relatively small compared with what we already have in the program.

On the A-12, we have no further investment on that because that program has been terminated. The T-45, that is in production and is operating successfully and with positive cash flow.

On the MD-11, this year, we will have positive cash flow for the first time. We have produced enough of them that our costs are down to where it is positive cash flow. So in none of these four programs are we having to invest additional large amounts of money.

As a result, we anticipate in 1993 we are going to be generating cash of about a billions dollars and be able to pay down our debt by about a billion dollars to get it back to the point that it was four years ago before we started this big investment program.

In addition, as I indicated, this year we will have positive cash flow from the MD-11. In the first quarter, we reduced debt. We were positive cash flow on the first quarter on the MD-11.

In the first quarter, the C-17 was right about at break-even. We expect for the year, the C-17 program overall will have positive earnings.

In the first quarter, we had record overall earnings. So from a financial point of view, McDonnell Douglas is past the point of real financial vulnerability.

We are well on our way to having a very strong balance sheet and very strong operations. On the C-17 program itself, the bottom line is we are committed to do an invest whatever it takes to make this airplane satisfy the user's requirements. That is the bottom line and we are willing to discuss that in more detail with this committee today.

The program is doing better. It is improving.

With regard to flight tests, we have six airplanes flying. They have had over 1,300 flight hours; 360 flights. We have set numerous payload-to-altitude records. We demonstrated that it can carry 160,000 pounds of payload more than 2,400 nautical miles.

The development is now more than 95 percent complete and, yes, it has had problems. We have agonized through it, but I think we are almost through that now. In fact, we got through it by a number of strong actions by bringing to bear the resources of the McDonnell Douglas Corporation.

At one point, we transferred more than 200 technical people out to Long Beach to work the software and other issues. We have separated it from the commercial business in order to have a dedicated, focused management team working from a government contract point of view.

We have sent a number of our top managers to Long Beach. In the last couple of years alone, we have sent six vice presidents from elsewhere in the company and hired two from the outside.

At the director level, there have been 14 we have either transferred from elsewhere in the company or hired from outside. We have, in fact, invested or have in that program about \$2 billion of our own money; \$1.5 billion programatically, and another half a billion dollars of brand new facilities that we have built at Long Beach for the C-17.

So in summary, we have the ability, and the will to produce the C-17 and it is the right airplane and now is the time to be getting it into the inventory.

The three of us are here to testify today. In addition, if it is okay with you, Mr. Chairman, I would like to have Mr. George Field, who is the Vice President and General Manager, Design and Test on the C-17 program join us. If we get into issues on the Test program, he is our expert.

Thank you, Mr. Chairman.

[The statement of Mr. McDonnell follows:]

**Statement by
Mr. John F. McDonnell
Chief Executive Officer
and
Chairman of the Board
McDonnell Douglas Corporation**

**Before the
Subcommittee on Defense
Committee on Appropriations
United States House of Representatives**

May 5, 1993

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

MR. CHAIRMAN, ON BEHALF OF THE 78,000 EMPLOYEES OF MCDONNELL DOUGLAS CORPORATION, I AM PLEASED TO HAVE THIS OPPORTUNITY TO SPEAK TO YOU ABOUT THE C-17 PROGRAM -- ONE OF A LARGE NUMBER OF PRODUCTS DEVELOPED AND BUILT BY MCDONNELL DOUGLAS IN SUPPORT OF OUR NATIONAL DEFENSE AND OUR NATION'S COMMERCIAL TRANSPORTATION INDUSTRY.

OVER THE PAST 70 YEARS, MCDONNELL DOUGLAS HAS BUILT OVER 50,000 MILITARY AND CIVILIAN AIRCRAFT FOR THE UNITED STATES AND OUR ALLIES. THIS WORK HAS PROVIDED HUNDREDS AND THOUSANDS OF AMERICANS WITH QUALITY JOBS WHILE CONTRIBUTING SIGNIFICANTLY TO THE SECURITY AND ECONOMY OF THE NATION.

FOR THE PAST SIX YEARS WE HAVE BEEN THE NATION'S LARGEST DEFENSE CONTRACTOR. WE ARE THE SECOND LARGEST RESEARCH AND DEVELOPMENT CONTRACTOR OF THE UNITED STATES GOVERNMENT AND THE THIRD LARGEST CONTRACTOR FOR NASA. MCDONNELL DOUGLAS IS THE 23RD LARGEST U.S. INDUSTRIAL COMPANY. WE ARE THE NATION'S SEVENTH LARGEST EXPORTER; THE WORLD'S LEADING BUILDER OF MILITARY AIRCRAFT, AND THE THIRD LARGEST BUILDER OF COMMERCIAL AIRLINERS.

MCDONNELL DOUGLAS AIRCRAFT PLAYED A MAJOR ROLE IN DESERT STORM WHERE EVERY SINGLE ENEMY AIRCRAFT SHOT DOWN IN AIR-TO-AIR COMBAT WAS SHOT DOWN BY A MCDONNELL DOUGLAS AIRCRAFT. MCDONNELL DOUGLAS AIRCRAFT WERE FLOWN BY ALL FOUR OF OUR MILITARY SERVICES DURING THE WAR. THE AIR FORCE OPERATED THE F-15 EAGLE; THE NAVY AND MARINES OPERATED THE F-15 EAGLE; THE NAVY AND MARINES OPERATED THE F/A-18 HORNET FROM THE DECKS OF OUR AIRCRAFT CARRIERS AND FROM AIRFIELDS ASHORE; THE MARINES FLEW THE AV-8B SHORT TAKE-OFF VERTICAL LANDING AIRCRAFT FROM AMPHIBIOUS SHIPS AND AIRFIELDS ASHORE; THE ARMY DEPLOYED THE SOPHISTICATED AH-64 APACHE ATTACK HELICOPTER THROUGHOUT THE CONFLICT.

MCDONNELL DOUGLAS IS EXTREMELY PROUD OF ITS ACCOMPLISHMENTS AS A LEADER IN THE AEROSPACE INDUSTRY AND ITS CONTRIBUTIONS TO OUR NATION'S DEFENSE.

MR. CHAIRMAN, SIMPLY PUT, WE BUILD THE BEST AIRCRAFT IN THE WORLD!

WE ARE A STRONG COMPANY WITH A PROUD HERITAGE!

JUST TWO WEEKS AGO, WE ANNOUNCED OUR CURRENT OPERATING RESULTS, AND I AM PROUD TO REPORT RECORD EARNINGS COMPARED TO ANY FIRST QUARTER IN OUR HISTORY.

MCDONNELL DOUGLAS IS TODAY, FINANCIALLY STABLE WITH A BRIGHT FUTURE!

- OUR OPERATIONS ARE PROFITABLE.
- WE HAVE A HEALTHY INVENTORY OF FUTURE CONTRACTS.
- FOREIGN MILITARY SALES ARE HELPING COMPENSATE FOR A SHRINKING DOMESTIC DEFENSE BUDGET.
- WE ARE THE PRIME CONTRACTOR FOR MANY OF THE MAJOR MILITARY AIRCRAFT PRODUCTION PROGRAMS LEADING INTO THE 21ST CENTURY.
- WE ARE NEARING THE END OF SIGNIFICANT, CASH-DRAINING, FIXED PRICE DEVELOPMENT COST OBLIGATIONS, INCLUDING THE C-17.
- WE EXPECT TO GENERATE \$1 BILLION IN POSITIVE CASH FLOW THIS YEAR.
- COMPANY DEBT WILL BE REDUCED BY \$1 BILLION TO LESS THAN \$1.8 BILLION BY YEAR END.

ACHIEVING THIS IMPROVED FINANCIAL POSITION HAS NOT BEEN PAINLESS. SINCE 1990 WE HAVE REDUCED THE SIZE OF OUR CORPORATION FROM APPROXIMATELY 130,000 MEN AND WOMEN TO THE 78,000 PEOPLE PRESENTLY ON OUR TEAM.

IN THE LAST FOUR YEARS WE, AS A CORPORATION, INVESTED \$5 BILLION INTO FOUR PROGRAMS - THE C-17, THE A-12 ATTACK AIRCRAFT, THE T-45 TRAINING SYSTEM FOR THE NAVY, AND THE MD-11 WIDE-BODIED AIRLINER. OF THE \$5 BILLION INVESTMENT, WE BORROWED APPROXIMATELY \$1 BILLION, ANOTHER \$1 BILLION CAME FROM THE SALE OF COMPONENTS OF THE CORPORATION, THE REMAINING \$3 BILLION WAS GENERATED INTERNALLY.

OUR OVERHEAD HAS BEEN REDUCED SIGNIFICANTLY. COST SAVINGS HAVE BEEN ACHIEVED IN EVERY QUARTER OF THE COMPANY. A RENEWED PRIDE OF OWNERSHIP IN OUR PRODUCTS IS EVIDENT THROUGHOUT MCDONNELL DOUGLAS.

OF OUR FOUR PROGRAMS I JUST MENTIONED, THE C-17 WILL ACHIEVE PROFITABILITY THIS YEAR. THE A-12 CONTRACT WAS CANCELED BY THE SECRETARY OF DEFENSE IN 1991. THE T-45 IS IN PRODUCTION AND TURNING A PROFIT. THE MD-11 HAS JOINED THE COMMERCIAL FLEET OF SEVERAL AIRLINES AND IS NOW GENERATING POSITIVE CASH FLOW.

OUR CURRENT FINANCIAL RESULTS ARE THE PRODUCT OF HARD WORK, SACRIFICE, STRONG LEADERSHIP, AND QUALITY MANAGEMENT WORKING TOGETHER WITH A SOLID DEDICATED TEAM AT MCDONNELL DOUGLAS, COMMITTED TO BUILDING THE HIGHEST QUALITY SYSTEMS IN THE WORLD.

AS FOR THE C-17 PROGRAM, WE HAVE PLACED STRONG, EXECUTIVE LEADERSHIP AT THE PROGRAM LEVEL IN LONG BEACH, CALIFORNIA. THE C-17 RECEIVES THE HIGHEST LEVEL OF ATTENTION BY SENIOR MANAGEMENT AT MCDONNELL DOUGLAS, AND WE HAVE CONTINUOUSLY SUPPORTED THE PROGRAM FINANCIALLY.

THE C-17 IS THE RIGHT PRODUCT AND NOW IS THE TIME TO BRING IT INTO OUR NATION'S AIRLIFT FLEET. WE HAVE ADDRESSED THE PROBLEMS ASSOCIATED WITH THE DEVELOPMENT OF THE C-17 DIRECTLY. WE HAVE WORKED CLOSELY WITH OUR CUSTOMERS TO RESOLVE DIFFICULT ISSUES. WE HAVE RESPONDED TO THE CONCERNS OF THE CONGRESS, AS WE HAVE ATTEMPTED TO DO WITH ALL OUR PROGRAMS.

WITHOUT HESITATION, I WOULD LIKE TO REAFFIRM OUR COMMITMENT TO PROVIDING A QUALITY AIRCRAFT TO MEET OUR CUSTOMER'S DEMANDING AIRLIFT MISSION.

THE C-17 IS PROVING ITSELF DURING ONGOING FLIGHT TESTS! THE AIRCRAFT HAS BEEN FLYING FOR MORE THAN A YEAR AND A HALF. SIX AIRCRAFT HAVE ALREADY LOGGED MORE THAN 1300 FLIGHT HOURS ON MORE

THAN 360 MISSIONS DURING THE TEST PHASE. THE PILOTS AND AIRCREWS WHO HAVE FLOWN THE C-17 APPLAUD THE C-17 AS A SUPERB AIRCRAFT! ON ROUTINE TEST MISSIONS, WE HAVE SET 14 WORLD RECORDS FOR PAYLOAD-TO-ALTITUDE. WE HAVE FLOWN MORE THAN 160,000 POUNDS OF U.S. MARINE CORPS EQUIPMENT FROM CALIFORNIA TO FLORIDA AND BACK OVER ROUTES OF MORE THAN 2400 NAUTICAL MILES -- A SUCCESSFUL DEMONSTRATION OF THE C-17'S OPERATIONAL UTILITY.

YES, THERE HAVE BEEN PROBLEMS ASSOCIATED WITH THE C-17 DEVELOPMENT, AS THERE ARE IN ALL MAJOR DEVELOPMENT PROGRAMS. THOSE PROBLEMS HAVE BEEN IDENTIFIED AND RESOLVED, OR ARE IN THE PROCESS OF BEING RESOLVED.

HOWEVER, AS A CORPORATION, WE ARE STILL EXPERIENCING THE TREMENDOUS BURDENS AND DIFFICULTIES OF MANAGING A FIXED PRICE CONTRACT FOR A MAJOR DEVELOPMENT PROGRAM. MCDONNELL DOUGLAS IS NOT ALONE IN ITS CRITICISM OF A FIXED PRICE DEVELOPMENT CONTRACT. MOST OTHER CORPORATIONS HAVE EXPERIENCED SIMILAR, IF NOT WORSE, RESULTS IN THEIR FIXED PRICE DEVELOPMENT CONTRACTS. THE DEPARTMENT OF DEFENSE, WITH THE CONCURRENCE OF THE CONGRESS, HAS DISCOURAGED SUCH CONTRACTS FOR DEVELOPMENT PROGRAMS. WE ENDORSE THAT POSITION!

REGARDLESS OF THE PAST DIFFICULTIES WITH THE C-17 DEVELOPMENT, WE ARE NOW READY FOR MORE EFFICIENT PRODUCTION RATES. WE HAVE JUST COMPLETED DISCUSSIONS WITH THE AIR FORCE DEFINITIZING THE CONTRACT FOR LOT FOUR OF C-17 AIRCRAFT. THE CONTRACT SHOULD BE SIGNED VERY SOON. WE HAVE COMPLETED 96% OF THE DEVELOPMENT PROGRAM. AS A RESULT, WE ARE COMFORTABLE THAT PROBLEMS OF SCHEDULE AND COSTS ARE BEHIND US. WE ARE NOW IN A POSITION TO ACHIEVE THE MOST COST EFFECTIVE PRODUCTION LEVEL POSSIBLE TO MEET OUR CUSTOMERS' NEEDS.

AS CHIEF EXECUTIVE OFFICER, I NEED TO REEMPHASIZE THAT WE, AS A CORPORATION, ARE COMMITTED TO THE C-17 PROGRAM AND WE ARE WORKING CLOSELY WITH THE AIR FORCE TO ENSURE THEY GET THE AIRCRAFT THEY

NEED, AT A GOOD VALUE; AND ONE WHICH PROUDLY BEARS THE HALL MARK OF "BUILT BY MCDONNELL DOUGLAS."

JOINING ME TODAY IS MR. HERB LANESE, THE CHIEF FINANCIAL OFFICER FOR MCDONNELL DOUGLAS, AND MR. DAVE SWAIN, SENIOR VICE PRESIDENT FOR TRANSPORT AIRCRAFT.

WE WELCOME THIS OPPORTUNITY TO RESPOND TO THE COMMITTEE'S QUESTIONS.

C-17 DEVELOPMENT SCHEDULE

Mr. MURTHA. Mr. Visclosky?

Mr. VISCLOSKY. Thank you, Mr. Chairman.

Good to see you, John. I have a couple of questions. First, you mentioned during your testimony that you are about 95 percent of the way through the development program.

What is your latest estimate on the completion of the C-17 development program, and what overrun position does that place you in?

Mr. McDONNELL. The financial completion?

Mr. VISCLOSKY. What is the development schedule in terms of—

Mr. McDONNELL. Plan dollars.

I will turn to Dave.

Mr. SWAIN. Let me go one at a time.

Your first question is what is our estimate to complete. Our current estimate to complete on the development plus the delivery of the first six production airplanes, and I state it that way because this is one contract; and we do have reserves against that. It is \$7.75 million. We believe we are 95 percent through that in terms of the development program.

What is remaining is the Flight Test program which is now 40 percent complete, so we have 60 percent to go. That is from a test data point perspective, which is important.

We are 40 percent through the static test and now at one-tenth of a lifetime through the durability test. Those are the major items.

Engineering is required and we have estimated that to make changes based on what we have learned in the Test programs. The current Air Force schedule for completing the Flight Test program is November 1994.

Expenditures on that contract end up being relatively small next year on the order of \$10 million or less a month.

Mr. VISCLOSKY. So in terms of the end of the developmental phase of the program, including the production of the first six aircraft, you would use the November 1994 data as well?

Mr. SWAIN. Yes.

Mr. VISCLOSKY. In terms of the additional costs over and above the \$7.5 billion to date, you are talking about an additional million dollars a month—

Mr. SWAIN. In 1994, \$10 million a month is our approximate expenditure level on the development side of the program.

Mr. VISCLOSKY. What about for 1993?

Mr. SWAIN. I may have to provide more accurate data for the record because it is coming down quickly.

It started in the order of \$50 million a month. It will close the year 20 or so. Those are all ball-park figures.

[The information follows:]

The C-17 development contract is now over 95 percent complete. Monthly costs for the development contract will average approximately \$35-40M during 1993. Delivery of the sixth production aircraft to the Air Force in June 1993 will complete deliveries of the six aircraft purchased as options to the "2108" development contract. By the end of 1994, monthly costs will have decreased to approximately \$10M per month as the development effort by then will be little more than completing the flight test program.

Mr. McDONNELL. The sixth production aircraft is just being delivered this month.

Mr. SWAIN. It is essentially built and we have a few people working on it in the final check-out phase. A lot of our cost last year and early this year is building those airplanes.

Our last airplane in the development contract is assembled. It is on the flight ramp and we are beginning to test the airplane. We start final engine testing on the airplane today.

Mr. VISCLOSKEY. What is your estimated time of completion for Lot 3, which includes 4 aircraft, to take you to P-10? What additional costs would that represent?

Mr. SWAIN. Lot 3 is 90 percent complete and we will, by year end, be 99 percent complete. We are 90 percent complete on Lot 3.

Our estimate to complete is \$1.150 billion. Included in that we do have a reserve position. That is about \$40 million.

Timewise, Lot 3, the last airplane will be delivered in January of next year. From a build standpoint, by year end of this year, we will be 99-and-a-fraction percent complete.

C-17 PRODUCTION PROGRAM

Mr. MURTHA. Would the gentleman yield?

There are 20 airplanes as we understand in the pipeline, 6 finished, and I guess 14 on contract. Would you go through where we are with that?

Mr. SWAIN. Yes, sir. Let me start with the six and add to that. The next airplanes are the Lot 3 airplanes and that is P-7 through P-10.

One of those airplanes is completing assembly and will go into its ramp testing, or final testing, before its first flight in June of this year.

All other airplanes will follow. They have gone into major join tools and systems are being installed. We will deliver P-10 in January 1994.

We have started assembly on airplanes P-11 through P-15 to date. They are in various stages. Those are in major sections. You can see wings and aft and forward sections.

P-10 is the last airplane that currently looks like a whole airplane. P-11 will move to major join tool in about a month, so it will begin to look like a whole airplane.

P-11 through P-14 are Lot 4 airplanes. Lot 5, we have started long leads. You can see some sections start to be built up.

We have done a piece of a wing, but not a whole wing.

We are also working on Lot 6—that is airplanes after P-20—Lot 5 is up to P-20.

Mr. MURTHA. Up to P-20 and then is there advanced procurement?

Mr. SWAIN. There is advanced procurement beyond that, sir, for Lot 6.

Mr. MURTHA. How many?

Mr. SWAIN. Six airplanes.

That was approved in the fiscal year 1993—

Mr. MURTHA. So you have already received the money for 20 aircraft—plus advanced procurement for 6. Where is the money now?

Mr. SWAIN. We have received some of the money for advanced procurement for Lot 6.

Mr. McDONNELL. We are getting progress payments on the work incurred up through Lot 6 but with limits, because that is just long lead on Lot 6.

Mr. SWAIN. We have certain suppliers that are just a lead time away on Lot 6.

Mr. MURTHA. You are paying those suppliers on time?

Mr. SWAIN. Yes, sir.

Mr. MURTHA. Mr. Visclosky?

Mr. VISCLOSKY. I understand, in terms at the end of Lot 3 production, that you characterize the estimate to completion at the end of that 1993, end of December, January of 1994—

Mr. SWAIN. That is correct.

Mr. VISCLOSKY. What charges have you made on the C-17 to date?

What charges do you anticipate you will take during 1993?

Mr. McDONNELL. Let me make sure I understand—when you say charges, you mean writeoffs?

Mr. VISCLOSKY. Yes, sir.

Mr. McDONNELL. Let me give a general answer and then Herb Lanese will respond. To date, in total on the C-17, we have had losses of approximately \$550 million to \$600 million.

In 1993, at this point, we don't anticipate additional losses. We believe profits we will be earning from the production airplanes that are in process will offset or somewhat more than offset ongoing losses on the development program.

So net in the whole program, we don't anticipate having additional losses in 1993 at this point.

Mr. VISCLOSKY. When do you believe you will be able to designate a production representative aircraft for the manufacturing process?

Mr. SWAIN. P-5 is the production representative aircraft. It was our baseline airplane. Because we are in our test program, there are already known design changes to that airplane.

The Air Force has done a great job defining those changes. Anything that looks like a change has been defined as a waiver or a deviation to the airplane.

There are roughly 86,000 part numbers on airplane P-5. Those represent the baseline airplane and then they identify exceptions and these are the waivers and deviations, which include known design changes, things yet to be validated in our test program and maybe design changes. It captures everything that might deviate from that baseline.

From building the airplane, the outside dimensions, how the airplane is made and our major tools, we think we have got a baseline airplane. It would take a major issue not to have a baseline airplane for production. We are working now on things that are inside the airplane.

Mr. VISCLOSKY. So P-5 represents our production aircraft?

Mr. SWAIN. Yes.

Mr. VISCLOSKY. At what rate do you have continuous production flow? What rate of production?

Mr. SWAIN. Today our production rate is six airplanes a year. It varies a little bit.

We reached a peak last year of seven. We came down below that as we caught up the schedule. It is back to six.

Mr. VISCLOSKY. The plant can accommodate production up to 12 with the current tooling?

Mr. SWAIN. The plant was built for 29 airplanes a year. The tooling currently in place is for 12 aircraft a year.

The tooling is for 12. Our assessment is we could go to 14 or 15 with assisted tooling.

Mr. VISCLOSKY. Why have you been unable to successfully negotiate with the Air Force a definitization of the production contract for Lot 4?

Those negotiations, as I understand, were ongoing about a month ago.

Mr. SWAIN. We have completed negotiations on Lot 4. We settled two weeks ago. It will still take the Air Force about to mid-June, I believe, to go through all their wickets within the Air Force and DoD before it is definitized and we settle our agreement.

Second, why did it take so long? It did take a long time—first, our original proposal was for six airplanes. The budget got cut to four and we had to repropose. That cost about three months in the process.

Secondly, the Air Force had a directive from OSD relative to contracting the terms and conditions. That cost them about three months.

So those two actions cost about six months in the overall process.

The negotiations themselves probably extended three months longer than I would expect to be normal.

COST PERFORMANCE INDEX

Mr. VISCLOSKY. My last question is when I visited McDonnell Douglas and we had a discussion about the cost performance index that was highlighted in the recent GAO report, one of the criticisms that McDonnell Douglas raised is that the GAO report referred to the 2108 contract performance and they also, when they talked about .26 performance, they were looking at the month where the wing failure has been involved and that the rates had gone up.

McDonnell Douglas then sent the cost performance index for Lot 3.

In terms of the cumulative average for Lot 3, there certainly is an improvement in terms of the rate. The cumulative average for the development of contract in the first set of planes is about 60 percent, cumulative average for Lot 3 is 74 percent.

I would note that. I also note in terms of the graphs that were submitted that both lines for Lot 3 as well as for contract 2108 are trending down through the month of March.

I would submit both of these for the record and ask if you could respond to why both trend lines are going down when we are so far along in terms of production and development.

Mr. SWAIN. On Lot 3, the cumulative average is above nine-tenths. Performance for the last month is .74. If you are comparing the previous cumulative average contract performance, it really compares .67 to .9 and a small fraction. Both those contracts have tailed off at the end on Lot 3. It reflects that we are not quite achieving our assembly performance_____.

Mr. VISCLOSKY. The figures I have here for March are .7; February .74; January .7. December is .88.

November is 89. I appreciate that your cumulative line is .88, but the line is trending down. Your average has been below your cumulative average since apparently August of last year and heading down. That is not the first five planes.

[CLERK'S NOTE.—The graphs referred to are business sensitive and are in the Committee files.]

UNION "BUMPING"

Mr. SWAIN. That is correct. You are right. Those are affected in the end game by our assembly performance. In absolute terms, we are on a typical large aircraft learning curve which is in the 74, 75 percent range. We were hopeful a year and a half ago when we signed the Lot 3 contract it would be considerably better.

We have had a degradation in performance. We have had quite a bit of employee turnover due to union bumping resulting from the downturn of the commercial business. The result is not achieving our optimism, but we have still been able to maintain an outstanding learning curve.

Airplanes in Lot 3 are being influenced by design changes. We capture all those we can before we deliver those airplanes. It does affect our performance.

Mr. VISCLOSKY. I understand you have 24 percent of your employees bumped from the commercial side to the C-17 plant during the current fiscal year.

Would we anticipate that your CPI is going to continue to decline?

Mr. SWAIN. I will and I can't guarantee CPI. I believe the current levels of Lot 3 is close to where it is going to level out.

Last year, we had about a 35 percent turnover of people because of bumping and that is in our actual Lot 3 performance to date.

This year is the worst period. We have gone through the worst period, December, January, February and we had a third of our work force affected during that period of time.

We still have some of that in front of us. Twenty percent may be right. The worst is behind.

Mr. VISCLOSKY. But you still have some?

Mr. SWAIN. Still have some to do.

Mr. VISCLOSKY. For the record, my sense of our conversation a month ago was that you are going to see about a 4 percent bump of commercial people coming into the C-17 program. Then, it was either 20 or 24 percent of that; over half that has already been absorbed?

Mr. SWAIN. Those numbers are about right. Yes, sir.

Mr. DICKS. How do you run a program when you have that kind of fluctuation in work force? Are the people that are being brought into the C-17 program, are they trained for this work?

Mr. SWAIN. It is not easy and it is a tough assignment on our production team.

I am proud of them. They are doing a great job in a difficult situation. It is an issue and it has resulted in not achieving performance expectations we thought we could.

When people bump right now, they are more senior and they have worked on MD-11 or MB-80s, so they are familiar with building airplanes, but they have not built a C-17.

We spend a week or two training them for a specific assignment on the C-17 and bring them into the work force.

Over time, we expect them to catch up quickly, but initially they don't have experience and initially we lose performance.

Mr. McDONNELL. They are overall more senior people, people with longer work experience than the ones bumping off. They just don't have the specific C-17 experience. So it is a relatively short-term effect.

While they learn specifically the differences of what they have to do on the C-17 versus whatever they were doing on the MD-80 or 11. It is all transport people.

The only bumping occurs in transport people.

Mr. SWAIN. A year ago we saw this coming. We sat down with the President of Douglas Aircraft Commercial and worked out an arrangement where we would transfer more senior people to try to minimize this effect.

It has had the advantage of making it not quite as serious as it could have been. The downturn of the commercial market was worse than we all thought.

We are still trying to transfer more senior people to give us a buffer against more downturn in that business. We are trying to take appropriate actions, but we all missed how serious the downturn was.

Mr. MURTHA. Mr. Skeen?

PROGRAM PERFORMANCE FACTORS

Mr. SKEEN. I appreciate the testimony that you have given relative to your financial statement.

Let me ask you a question at the outset. You have alluded to several factors that caused the problem with the program, but dealing with the C-17, what went wrong and what did you do to remedy it?

Mr. McDONNELL. Let me try—a lot of things went wrong. There is a whole series of factors that entered into getting to the position where we are.

For me to try and go through all those, I am not sure there is time enough in this hearing.

Mr. SKEEN. There are some other things that were uncontrollable as far as you were concerned?

Mr. McDONNELL. These were factors—some of them were our own doing.

Mr. SKEEN. I am more interested in those.

Mr. McDONNELL. Our own doing was the fact that in the late eighties at Douglas Aircraft, we had more business than we could perform. We were developing the C-17, developing the T-45, and MD-11, and trying to build up production rate on the MD-80.

Employment over a six-year period went from 17,000 to 50,000 people, a huge build-up, the opposite of what we are going through now.

Some of these factors were in our original planning; we didn't plan to have them all occur together. The C-17 was going to be developed before the MD-11, but because of push-backs in appropriations got pushed out longer and longer, along came the MD-11 and they were very concurrent.

That was within our domain and we had too much on our plate. There were other things in terms of the program changing substantially from what it was originally intended.

Mr. SKEEN. Those were factors that you couldn't control?

Mr. McDONNELL. Some were within our control. Some were not.

In total, many things happened to the program that caused it to be in the state where it is behind schedule and it is costing more than originally anticipated.

I might mention one other thing before I get into what actions we did take to try to minimize these issues. That is the fixed price development.

Fixed-price development itself is a factor in what happened. The Institute for Defense Analysis did a study three years ago in which they looked at 80-some programs, including 7 fixed-price development.

Their conclusion was that fixed-price development contracts, on average, ended up costing 52 percent more than originally expected.

If you take the cost figures on the C-17 and the estimate now, it is about 52 percent more than what the originals were.

Mr. SKEEN. Popular figures in the media say that it was a billion dollar overrun program.

Mr. McDONNELL. If I may take a minute, the original cost estimate on the C-17, cost not ceiling, was about \$5.1 billion and then the ceiling for that was \$6.5 billion, but the cost was \$5.1 billion.

We are now looking at a cost of \$7.8 billion to \$8.8 billion, which represents about a 50 percent increase from that original 5.1 percent.

Now, you are right in terms of over ceiling it is about a billion dollars, but in terms of the original cost estimate, it is on the order of \$2.5 billion to \$3 billion. Based on the Institute for Defense Analysis study, that is typical of fixed-price development contracts as opposed to the contracts they looked at that weren't fixed-price development. They averaged a 27 percent increase in cost.

FIXED PRICE DEVELOPMENT CONTRACTS

Mr. DICKS. What is that? That was supposed to be the big panacea. I opposed it because I didn't think it would work. Why does that happen?

Mr. McDONNELL. Let me give you some of my thoughts. One is that it puts the working relationship between the customer and the

supplier in a very difficult situation because there is a specification, but these are very complex systems and a specification can be interpreted in many ways. I am going to interpret the specification as much as possible to my benefits and in effect I don't care if something costs a lot to do. That is on the contractor. So you are not both pulling to try to come up with the right solution in terms of cost and performance. It puts the customer and the supplier at odds with each other as opposed to trying to come up with the best overall solution. That is one factor.

Herb, are there others?

Mr. LANESE. I agree. It automatically builds in from the beginning an adversarial relationship. If you have ever built or added on to a home, if you have a contractor that has a fixed-price contract to do that, you, as the owner of the home have a tendency to try to get as much as you can for what you are paying for.

The builder is going to try to cap his costs so from day one it becomes very adversarial. The other issue is in a development program, you could call it fixed price, but it is managed like a cost-plus program and when you have a key customer who needs certain things done on the airplane, the tendency is to do those things on that airplane early on in the program because of relationships, because you have a long way to go and it is a major development effort for the contractor and the customer.

Mr. McDONNELL. This airplane as being delivered now is a much more capable airplane than originally envisioned. This is a modern airplane that came about during the eighties.

For instance, it has 57 computers on it.

Mr. SKEEN. It is a much more costly aircraft—

Mr. McDONNELL. In terms of getting it developed, it has turned out to be substantially more costly. What actions did we take to try to minimize this? We did all sorts of things.

As I mentioned, for instance, we were having problems on the software programs and the light software. We transferred over 200 of our best software and other technical people to Long Beach to have them fix that problem. We have suppliers that weren't able to perform. We have had to cancel some suppliers and bring on others that have in fact performed very well. We have put some of our best management people on this program. We have separated the C-17 out from our commercial business so that we didn't get fuzziness of objectives, so it is a completely dedicated organization. We have tried to bring to bear the full resources of McDonnell Douglas to make this a success.

Mr. SKEEN. In a previous discussion we have had, you said the Company has undertaken a great deal of personal risk to refinance. How is that program working?

Mr. McDONNELL. Well, on this program itself, as I previously indicated, we have at this point \$2 billion of our own money in the program.

Mr. SKEEN. Reinvestment?

Mr. McDONNELL. In terms of actual cash, that is tied up in this program between the facilities we have built and all the extras we have put in on the development program in terms of our overall financial situation we had tight times, a couple of years of tight financial conditions.

Mr. SKEEN. You are a public company, aren't you?

Mr. McDONNELL. That is right. We are publicly owned. We are now at the point that if we do need to put more money on this development program, we have the resources to do it.

MC DONNELL-DOUGLAS FINANCIAL PERFORMANCE

Mr. SKEEN. Since you have initiated the program, what are your first quarter results about?

Mr. McDONNELL. \$300 million of cash flow and paying down debt. On this program alone in the first quarter, it was essentially break-even, but we had to invest additional money which we did, but we were able to generate enough cash from all our other programs.

Mr. SKEEN. I understand you had a \$1 billion cash flow generation goal in mind?

Mr. McDONNELL. For 1993, we believe we will be generating a billion dollars of cash. In the first quarter, we generated \$300 million so we are on target to generate that billion dollars in 1993.

Mr. SKEEN. What are your long-term forecasts and the profit outlook for 1994 and beyond?

Mr. McDONNELL. It is very good. We are performing very well on essentially all of our other programs, military and commercial. We have had positive earnings for ten quarters in a row so it is not a drain on our corporation. On military programs, we are generating over a 10 percent profit rate.

Mr. SKEEN. Is your aim to generate cash flow or profit flow both in the commercial and the general aviation and the military aviation as well?

Mr. McDONNELL. Absolutely. We are making them stand on their own feet. Commercial is the one that there is a concern.

Mr. SKEEN. So you are not relying on the C-17 program to help—

Mr. McDONNELL. Absolutely not. The commercial business has to be a viable business on its own. We have separated the commercial business from C-17 so that the C-17 is not generating cash that then gets soaked up on the commercial side.

Mr. SKEEN. You are not relying on any assumptions with the C-17?

Mr. McDONNELL. No. The C-17 is one of our primary programs. We expect it to be cash positive by the end of 1993.

Mr. SKEEN. What is your company doing to assure that taxpayers and lawmakers and defense firms that you are in secure financial shape and ensure that future production schedules will be completed?

Mr. McDONNELL. In terms of financial shape, our number one priority is to get our debt down. We have reduced it by \$300 million now. We expect it to be down by \$1.8 billion after the end of this year. I believe by the end of the year, we will have one of the strongest balance sheets of any aerospace company.

Mr. SKEEN. How is your stock doing?

Mr. McDONNELL. It is strong at this point.

Mr. SKEEN. Your stockholders stayed with you?

Mr. McDONNELL. We had a very strong statement in the first quarter and our overall stock price is trending upward at this time because I believe the financial community is beginning to understand now that we are past our tight period and that we do have a good future.

Mr. SKEEN. When you separated the commercial and the military sectors, did that have any effect on the stock transactions?

Mr. LANESE. No, sir; not that I recall.

Mr. SKEEN. So stock in the company is in both?

Mr. LANESE. It is viewed as positive. We made a statement that we fully expect our commercial investment to stand on its own two feet. I don't recall any real effect on the stock price at that time.

Mr. SKEEN. Evidently you got a very strong response?

Mr. LANESE. One thing I think has been well received. Our commercial business has had positive earnings for ten quarters in a row. I don't think we have ever done that in the history of Douglas Aircraft. That can't happen by accident. Something has to be going right for that to occur because we struggled for 25 years to try to do that. In the last two years, we have been able to accomplish it.

Mr. SKEEN. Have you changed your way of doing business with the military as far as contractual agreements?

Mr. McDONNELL. We do not intend to take any more fixed-price development contracts. That comes with the next generation of management to do that.

Mr. SKEEN. Are you meeting any resistance in that area?

Mr. McDONNELL. No. A couple of years ago, they changed the regulation not to have fixed-price development.

Mr. SKEEN. I appreciate your responses.

Thank you, Mr. Chairman.

C-17 UNIT COST

Mr. MURTHA. A couple of things. An engineering analysis completed by your own engineers states that the C-17 aircraft is about 20 percent more complex than the MD-11. Would you say that is accurate?

Mr. SWAIN. I think maybe I had some people do that sort of analysis from a cost perspective; I got 15 to 20 percent more complex.

Mr. MURTHA. What is the reason the C-17 costs so much more—your MD-11 is around \$100 million an aircraft and this airplane so far has a unit cost of \$340 million. What is the reason there is such a big difference?

Mr. SWAIN. Let me start—the first MD-11's were a lot more expensive than the current production MD-11's. It is average price over 300 airplanes and it has a history of 400 DC-10's behind it in terms of learning curves. The basic structure is similar. On the C-17, it is not average price or average cost, each contract is separate. So the full cost of the first airplane and the second and the third is very visible to you and the taxpayers.

Mr. MURTHA. I see the direction you are going. It is a number so far. I asked Mr. Visclosky and Mr. Skeen to look at providing funding for one airplane, four airplanes, or twelve airplanes in fiscal year 1994.

We asked the Air Force to give us an analysis of what it would cost per airplane if you went to 12. We asked you to do the same thing.

Have you come up with a figure as to what the cost savings would be if we went to 12?

Mr. McDONNELL. There is an overall curve. For instance, if we were able to produce that airplane at say 12 to 14 a year on a fairly steady state basis, our estimate is that the 120th airplane in 1994 dollars would cost about \$175 million. Now, if you upped the rate to 18, then that price, the cost would probably be 10 percent below that.

Mr. MURTHA. What is the baseline figure—obviously not the \$340 million.

What would be the baseline figure?

Mr. McDONNELL. That would be coming down the curve from that \$340 million.

Mr. MURTHA. So 340 versus 5 and 12—I am trying to see the difference and whether it is worthwhile for us to try to find the money if Mr. Visclosky and Mr. Skeen recommend this approach and the Committee goes along with their recommendation to go forward with this program. What would the savings be per airplane?

Mr. McDONNELL. Two factors. One would be the total number you buy. Each additional airplane you buy costs less, but also the rate at which you buy them. Both factors enter into it.

Mr. MURTHA. Give us 12-a-year figure.

Mr. McDONNELL. At 12 a year, the one number I have is that the 120th airplane as 12 a year would cost about \$175 million in 1994 dollars. Now, it will be up from there.

Mr. MURTHA. Well, give us the figures for the record. We want to make sure we are accurate about your projections.

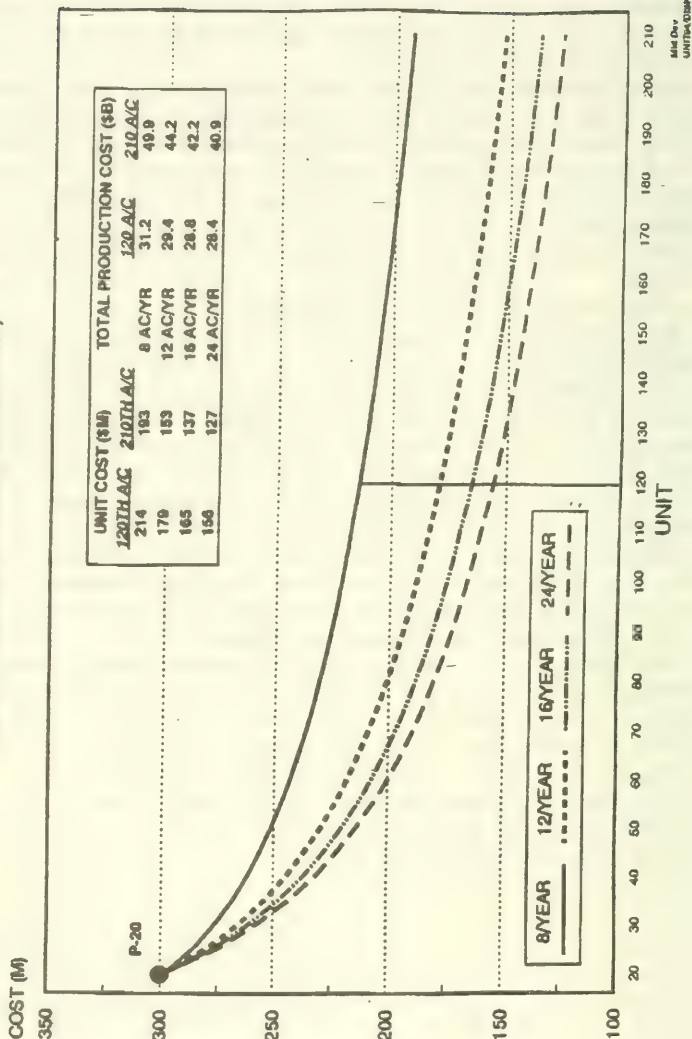
Give us the figures for this coming year if we go to a net figure and project it out for five years.

[The information follows:]



UNIT FLYAWAY COSTS

(\$FY94 - CURRENT ECONOMIC ASSUMPTIONS)



Mr. McDONNELL. I am about running to the end of the details I have. This coming year, we have not projected 12 I believe because of the buildup. We would be talking 6 to 8.

Mr. SWAIN. That is correct.

For fiscal year 1994, we have looked at 6. We have looked at 8 for FY95.

I have that data available and will be happy to share that after the meeting.

Mr. MURTHA. Provide for the record the unit cost for producing 12 aircraft.

Mr. SWAIN. For fiscal year 1994, okay.

[The information follows:]



BUY PROFILE CASE STUDY

(\$M TY)

| CASE | FY 94 | FY 95 | AVERAGE
COST | MARGINAL
UNIT COST | PROGRAM
IMPACT |
|---------------|-------|-------|-----------------|-----------------------|-------------------|
| BASE CASE: | 6 | 8 | 14 @ \$260 | N/A | N/A |
| 8-12 SCENARIO | 8 | 12 | 20 @ \$240 | 6 @ \$190 | (\$750-800) |

BOTH CASES ASSUME UTILIZATION OF CASE 3A DELIVERY SCHEDULE.
COSTS DO NOT INCLUDE THOSE COSTS ASSOCIATED WITH THE ENGINES.

FISCAL YEAR 1994 C-17 BUDGET REQUEST

Mr. MURTHA. As you know, this Committee has strongly supported this program. I had grave reservations about the program, however.

Mr. Dixon and Mr. Lewis came to me and said that I hope that you will be more open minded about it because I was very critical initially.

In my mind, they at least saved this program from my lobbying very hard against it. You still have many strong supporters on this Committee, but what we are finding out will be helpful in making our final decision.

I don't think everybody has come to a conclusion yet, but we appreciate your taking the time to come before the committee.

Mr. Dicks.

Mr. DICKS. How many planes are requested in this year's budget?

Mr. SWAIN. Six airplanes are, I think, being provided there in the budget.

Mr. DICKS. That is the budget request?

Mr. SWAIN. Yes, sir.

Mr. DICKS. Could you do more in 1994?

Mr. SWAIN. Yes.

Last year we were long led to be eight. In fact, that is what we have with our long lead with our suppliers right now.

Mr. DICKS. What is in the budget for long lead in FY 1995?

Mr. SWAIN. I believe it is 8, but I am not positive.

Mr. DICKS. Is there a five-year plan. Will they ramp it up to twelve?

Mr. SWAIN. I believe so, but there were a lot of last-minute adjustments in the budget and we are not caught up on it. The last view I had of it, it peaked to 14, but that was in December.

Mr. DICKS. Have you finished your lot 4 contract with the government?

Mr. SWAIN. We have finished negotiations. The actual signing of the contract is whether the government gets all their approvals through DoD. Their planned completion date is 15 June.

Mr. DICKS. The chairman's point is you couldn't go to 12 this year because you didn't have the long lead?

Mr. SWAIN. Yes.

Mr. MURTHA. If you can get the figures for eight and then once we hear what the savings will be we can make a decision.

Mr. SWAIN. I have six and eight with me and I will share those.

Mr. McDONNELL. If money is available, eight this year; ten in 1995; twelve in 1986 to build up the production rate and not have great disruption. That would be bringing the cost down at a very substantial rate in a program like that.

Mr. DICKS. What do you make of all this congressional criticism of this program? Is this typical that we are about a year and a half behind the facts here? I think there are a lot of people who don't have much experience in defense who all of a sudden have heard about C-17 and they don't have the B-2 to beat around so they have to have something else to get upset about.

Are they in terms of the program being in a stronger position, and that we are ready to go into production? Are they reading reports based on things that happened a couple of years ago?

Mr. McDONNELL. Yes, based on that and the preception of McDonnell Douglas being shaky financially.

Mr. DICKS. Has your credit rating gone down?

Mr. McDONNELL. The credit rating has gone down. We believe that if, by the end of this year, we can generate this additional cash and pay down debt, our credit rating will be poised to go back up. However, the rule of thumb with credit ratings is they do down fast and they come back up slowly.

Mr. DICKS. Is that affecting your ability to operate?

Mr. McDONNELL. It has made it 100 percent clear. We have to operate within the funds we have. We are not going to be able to go out and raise more funds. So it has very much focused us to make sure the number one priority is to get that debt down because it is clear with our debt rating we can't go out and raise any significant amount of additional money.

MC DONNELL DOUGLAS OUTSTANDING CLAIMS

Mr. DICKS. What is the total amount of claims you have filed to date against the government for the C-17 transport?

Mr. SWAIN. On the aggregate at cost, approximately \$380 million.

Mr. DICKS. Have these claims been resolved?

Mr. SWAIN. They are all up in the air.

Mr. DICKS. What were the grounds for these claims?

Mr. SWAIN. It varied. Most typical are issues over scope in the contract, was that task really in the contract or not. There are a couple of claims that deal with terms and conditions of the contract and not scope.

Mr. DICKS. We have here a list of claims and litigation saving tactical air navigation system, \$16.9 million; flight test extension, 30.5; economic price adjustment, 54.7; lightning protection, 7.9; aircraft jacking, 2.1; crosswind landing, \$421,000.

Are these the kinds of standard claims or is there—

Mr. SWAIN. These are standard claims. The only thing that might not be standard is specific contract issues like economic price adjustment. That is a contractual issue. That may be unique to this contract; I don't know. The others are standard.

Mr. DICKS. Are there going to be any additional claims?

Mr. McDONNELL. We are in the process of trying to determine what additional legitimate claims that we may have. We have not come up with it. We are looking in the realm of delay and disruption, but we do not have anything specific at this time. However, let me again go back to the overall perspective. This program from the original cost estimate of \$5.1 billion has increased by 2½ to 2¾ billion dollars.

It is clear both we and the government have contributed to that. It is not yet clear in terms of as we go through specifics what proportion of that was caused by U.S. Government actions versus what proportion was just us in our performance. I believe overall it is

clearly going to be well above \$400 million, but we don't have specific claims.

Mr. DICKS. There has been speculation in the press that this would go as high as a billion dollars?

Mr. McDONNELL. At this point, I would prefer not to speculate.

Mr. DICKS. I know that is what you would prefer to do. Have you considered any range of costs?

Mr. McDONNELL. I don't at this point really have a range.

Mr. DICKS. When will this be decided?

Mr. McDONNELL. We have got a team working now to try to go through with the specifics in terms of determining primarily in the delay and disruption area what grounds there were in terms of overall delay and disruption and that is a very complex issue in terms of how much one particular change kind of ramifies through and causes other additional costs. So it is something very complex and we are having our people go through it carefully. We do not want to submit any claim that doesn't have a very sound basis to it.

Mr. SWAIN. The thing I would like to add is that—we are working toward late summer, Mr. Dicks, but it has not been a high priority item with us.

Our people are focused on the program. The people working on claims we have tended to bring in from retirement to ensure that our main line people are focused on making the airplane perform as we want it to perform. It will get done when it gets done.

Mr. DICKS. You had another program that was cancelled, the A-12. What is the status of that litigation between yourself and the Navy?

Mr. McDONNELL. It is in discovery at this point. There are various depositions that are going on. I guess I would characterize it as still relatively early in discovery.

Mr. DICKS. What is the range here? How much money is being discussed?

What kind of a suit are we talking about, and who could owe who how much?

Mr. LANESE. The government cancelled the contract with DOD for default, Congressman. In that cancellation, they argued that we owe the government, General Dynamics, the other contractor, and we owe the government approximately \$1.3 billion to \$1.4 billion. We filed a counterclaim and argue that we are owed somewhere in the vicinity of a billion and a half dollars, \$750 million a piece, joint contract.

The DOD argued that we owe them roughly a billion four. We argue they owe us a billion five, so we are pretty far apart. There is a \$3 billion spread between the two. It is currently going through the court system. Unfortunately it is being litigated and we can't really tell the length of time it will take to take this to fruition in the courts. We hope to have this resolved before we go through this legal process and that reasonable people can get together.

Mr. McDONNELL. It has been in claims court for two years. It is currently scheduled for trial in early 1995.

Mr. MURTHA. Mr. Lewis?

Mr. LEWIS. Mr. Chairman, I really have come to try to assist my colleagues in getting information. I was intrigued with your discus-

sion and response to Joe Skeen relative to the financial security of the company.

You indicated ten quarters of positive experience and improvement of economic conditions following the general problems that reflected the economy and cutbacks under pressures of a year and a half ago.

That brings me to a question of in view of that pattern, et cetera, why did you find it necessary to bring in an entire new management team?

There are exceptions, but you know the point.

Mr. McDONNELL. On the commercial side. This has occurred since that management team. That management team came in early in 1989. In other words, that team came in four years ago and beginning a year and a half after that, we have had solid profits since then. That new management team has brought in a discipline and an approach that we had not had before.

Mr. LANESE. May I comment?

Mr. LEWIS. I am thinking that the Air Force indicated that there was a new team brought in on the C-17.

Mr. McDONNELL. Mr. Swain went on that program in early 1991, two years ago, and has been on the program since then. We have brought in, for instance, his deputy, Mr. Berry, who came in a year ago approximately and we have brought in others as need be at the vice president level, but the basic top management of the program Mr. Swain has been in that position for two years now.

Mr. LEWIS. One of the things I wanted to mention is if you would clarify any doubts that might be in my mind or the record that would be helpful, but one of the questions that swirls around often are reports that come to the Congress that may or may not have the kind of basis information one might hope for.

The GAO report is having some impact in that connection. I would remind my colleagues that GAO reports sometimes are excellent and sometimes not so good.

I am reminded when the B-1 was being reviewed by GAO they were talking about the cost projected for a fix on the engine fan blades and the estimate was a cost fix of \$500 million.

The actual cost for the entire fleet ended up being \$10 million. That sort of problem seems to do over time in relation to those reports as it relates to defense programs like this.

If you keep that in mind as we review this, for the record, I thought that was important to mention.

Mr. McDONNELL. I agree with you. Some of their reports are good and some are not so.

Mr. LEWIS. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Wilson.

Mr. WILSON. No questions. Good luck, sir.

Mr. McDONNELL. Thank you. We appreciate that.

Mr. MURTHA. Mr. Hefner.

FINANCIAL PERFORMANCE

Mr. HEFNER. Thank you, Mr. Chairman.

As a long-time supporter of the C-17, I remember many years ago that we weren't too concerned about building another plane because we were pretty good at that. Now we have the Air Force in here and nobody wants to be the proud father of a C-17.

Your statement, says you have 50,000 people less than you had 10 years ago, is that accurate?

Mr. McDONNELL. We have 57,000 people less than we had 2½ years ago.

Mr. HEFNER. How would that affect your profitability and payroll?

Mr. McDONNELL. Payroll, if you assume 57,000 people times an average of \$40,000 or \$50,000 a year, that is a \$2.5 billion to \$3 billion a year payroll.

Mr. HEFNER. So for the last 2½ years, you have saved \$6.5 billion that you cut from your expenditures?

Mr. McDONNELL. It hasn't all been in place for that time. Four to five billion dollars, I think, is reasonable to say we have cut from our internal expenditures.

Mr. HEFNER. Could you provide for the record, what your total costs are projected to be for this program?

Mr. McDONNELL. Total cost from this point on?

Mr. HEFNER. From 1981 when we decided to build this C-17, what is your current estimate of the total cost.

You can use whatever assumptions are reasonable.

Mr. McDONNELL. It clearly will be a projection based on a certain set of assumptions in terms of a 10-to-12-a-year production rate.

Mr. HEFNER. Use 10.

Mr. McDONNELL. In 1994 dollars?

Mr. HEFNER. If the last one is going to cost \$175 million, I would like to see what did these others cost and average it out.

Mr. McDONNELL. To put on a reasonably comparable basis, the average for the 120, the average cost on the same basis, 12 to 14 a year will be, call it 220, in that ball-park average as opposed to the 175 on the single airplane. We will get you the actual numbers for the record because we can do it.

[The information follows:]

No doubt the costs would have been several billions less due to inflation. Unfortunately, we have no basis for accurate comparison due to the significant differences in originally planned production rates and those which were actually approved.

Mr. HEFNER. Do you feel that the worst times are behind you?

Mr. McDONNELL. Absolutely; yes. Without a doubt.

Mr. HEFNER. You also said that whatever money you spend is basically going to have to be generated through cash flow because even though your credit rating is getting better, people are not going to loan you any money at this particular point because they want to see if you are overextended.

You are some \$3 billion apart in your law suit with the government and we are talking about a compromise; is that the way it is?

Mr. McDONNELL. That is on the A-12 program; \$3 billion apart.

Mr. HEFNER. You are talking about a compromise. Can you say how long the litigation is going to be?

Mr. McDONNELL. The trial is tentatively scheduled for early 1995. My guess is that will slip so we are still years and years away.

Mr. HEFNER. We are using Pentagon lawyers and you are using a firm in St. Louis?

Mr. McDONNELL. The Justice Department is handling that.

Mr. HEFNER. They probably overmatched. In the event that you win your litigation, does that come out of the Department's appropriation every year?

Mr. McDONNELL. If I may, I would like our counsel, Mr. Gaffney to address that issue.

Mr. GAFFNEY. I am outside counsel for the corporation. Any judgment against the United States would come from the special judgment funds set up by Congress to pay such judgments. So there is a standing appropriation for litigation of this type from which the payment would be made and that, I think, ultimately is assessed against the Department. The specific mechanisms of that assessment are handled by the statute which covers the payment of judgments.

Mr. HEFNER. I am assuming that if the Department of Defense is in error, Mr. Chairman, that that would come out of the hide of the Department of Defense.

Mr. MURTHA. Are you saying the only ones that make out are lawyers?

Mr. HEFNER. I was just curious to see where the money would come from to pay such a judgment.

I am still a strong supporter of the C-17, but I think you have a tough sale on your hands. It is probably not as tough a sale as a billion and a half dollars for Russian family housing, but it would rank up there close.

I wish you well because I think the concept was excellent when you started and I regret that we have had all the problems we have had and I wish you the best of luck. We appreciate your coming before the Committee.

Mr. DIXON. I started out as a strong supporter and still am a supporter, but I have gravitated more towards your position than you have gravitated towards mine.

I would like to enter into the record a statement on the C-17 by Congressman Steve Horn, in whose district the plant is located. Congressman Horn is obviously very supportive of it.

[The statement of the Honorable Stephen Horn, a member of Congress from the State of California follows:]

STATEMENT OF CONGRESSMAN STEPHEN HORN
HEARING ON THE C-17 AIRLIFT PROGRAM
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON DEFENSE
Wednesday, May 5, 1993

MR. CHAIRMAN:

Recently, Secretary of Defense Les Aspin announced that he is requesting funding for approximately six C-17 air transport planes for fiscal year 1994. The C-17 is built by McDonnell Douglas in Long Beach, California. I am, of course, disappointed that the number of planes to be purchased next year has been reduced from eight to six. I am pleased that Secretary Aspin has reaffirmed the need for the C-17 and the world-class airlift capability it will provide for our military forces well into the 21st century.

Joint Chiefs of Staff Chairman Colin Powell, other JCS members, and all of the field commanders have maintained their strong support for the capability provided by the C-17. Five C-17s are now operational. One of them has set 14 world records in lifting payloads to altitude, and another has flown more than 160,000 pounds of equipment more than 2,400 nautical miles without air refueling -- a successful demonstration of the C-17's operational utility. The C-17 will provide an unprecedented ability to land, take-off, and maneuver on shorter, less developed air strips -- an increasingly important asset in today's uncertain world.

The fleet of the future, with the C-17 as its cornerstone, would have delivered 36 percent more cargo during the first 45 days of Operation Desert Shield than was actually delivered by our

current fleet. In the Bosnia resupply operation, one C-17 would provide a 250 percent increase in air drop capability over the C-130. The simple message is that we need to modernize our airlift capability and the C-17 is the plane we need.

I truly believe the C-17 is the linchpin of our military's airlift capability of the future. As we reduce the presence of American forces overseas, the capability to project force from the United States becomes all the more essential.

C-17 PROGRAM MANAGEMENT TEAM

Mr. DIXON. My questions are general in nature about the financial condition of McDonnell Douglas; and secondly about this management issue.

As I understand it, and I may be entirely wrong, there are two management issues that have been floated about. One is the management of McDonnell Douglas of the project.

The second one is the management by the Air Force of the C-17 program.

I was reading the Acting Secretary of the Air Force report to Secretary Aspin last night, and I could not understand why Aspin had taken the position or the action that he had taken.

I did not have his press release or his memo there. Basically what Secretary Aspin said after reading the report is that he disagreed with the judgment, that the actions taken by the Air Force management team were not in the norm of discretion. Secretary Aspin's memo says flatly "I disagree."

My question to you is from a slightly sarcastic point of view. You had a good management team there, a management team that at least in Secretary Aspin's view caused the management team of the Air Force to do nothing about things that were wrong with the program.

So I am asking you what is so great about this new management team of McDonnell Douglas that you have brought in that you can assure everyone that the program is fine now. Why wasn't that kind of team put in place in the first place?

Mr. McDONNELL. The management team on the C-17 program has not been changed overall at once as such. We have tried to put the best people we have on the program.

If you look at the program manager for the program, this is a program that has been in being now for 13 years. The first program manager—my history is not still clear over a 13-year period, but the first was on it for a number of years and he reached retirement age and retired.

Mr. DIXON. What is the quality? The Air Force comes in and says we have great confidence that the program will not have any more problems because of the McDonnell Douglas management team.

What are the qualities of the new management team—have these people had no failures in the past on any project?

What is it about this team that this subcommittee should say, "they have a good management team there now?" Define this management team for me.

Are there more people? Are they better credentialed? They have better education? Are you paying them more money?

What is this management concept that makes it so great now that the Air Force comes and says it is their management team now?

Mr. McDONNELL. We believe we have an experienced team that has a lot of good background and has had a success record in the past individually and if we look at what is happening on the program, the program is getting better. They are doing better against schedule and costs.

I would tend to look at the record in terms of what has been happening in the last months and years and use that as the basis for saying we have confidence that it is going to continue to get better in the future.

Mr. DIXON. So there is a recognition that the management team was not sufficient at some point in time?

Mr. McDONNELL. The overall combination of the challenge that they had in development and, as I indicated, one of the problems we had that is squarely on us is that we had too much on our plate for a while at Douglas Aircraft. So there was more to be done than we had the management resources and other resources to do. That is not the case now both from a management resource point of view and financial and overall capability; facilities, experience, production workers, we now have an experienced team working it.

MC DONNELL DOUGLAS FINANCIAL POSITION

Mr. DIXON. Explain your financial position, assuming that you lost every case of every outstanding claim that you have.

Mr. McDONNELL. If we lost——

Mr. DIXON. You lost \$1.5 billion on the A-12 aircraft. The paper says that there could be other claims of over a billion dollars.

I guess the question is can you absorb a \$3 billion loss?

Mr. McDONNELL. First let me take the C-17. Even though the paper says a billions dollars or whatever, we in our financial statements are only assuming that we recover \$200 million in claims on the C-17. So we are not assuming we get any of the rest. We have already taken the rest of the writeoffs and have the cash in it.

By the way, even if we didn't get those claims, it wouldn't be cash. There would be no more cash out of pocket. It just wouldn't be cash coming in. So there isn't any more downside of the C-17 from not getting our claims.

Mr. DIXON. I think that is very important.

Mr. McDONNELL. That is right. On the A-12, let me point out that this swing of \$3 billion plus or minus that is the combination of General Dynamics and us. So ours is only half of that amount and the maximum downside on that——

Mr. DIXON. Is 700-some million dollars.

Mr. LANESE. A billion one is our maximum downside. To get to that, you have to assume that the government is going to restart the program and we will have a replacement. We don't believe that is practical and that will happen. If you were to restart the program, it would be as great as a billion two a piece.

Mr. McDONNELL. Absolute maximum and that would presumably be a number of years in the future.

Mr. DIXON. So at the present time, you foresee no situation where this program can jeopardize the solvency of the company?

Mr. McDONNELL. I do not. We are in a position now that we have the financial strength to put in whatever it takes on this program to make this an airplane that meets the user's requirements.

Mr. LANESE. There are two points that are very disturbing to us and we have spent the last two days talking about them. First is that we have no financial capability and are on the verge of losing the corporation. That is blatantly untrue. The second is that we are

not willing to support the C-17 program. That is blatantly false. It is very disturbing to me personally to hear the head of the DCAA comment at a recent hearing that the company was in a very unfavorable position.

That October review looked at data in June of 1992. We are 10 months beyond that now. We are looking at 10-month old data and making comments. If you are going to testify on the health of the company, look at where we are today and what our projects are. From a project standpoint, we recognized we had no friends in the process, no one was going to loan us money. If we were going to fix the company, we had to do it ourselves and we went through a difficult two-year period. We are funding this year to get our balance sheet in order.

At the end of the year, we will have one of the best balance sheets in the industry. In the high-risk environment we are in, we need stronger financial help and not weaker. In the investment side in support of the C-17, we have put \$2 billion of our money into this program. We do not take that lightly. This is a critical program to us. For people to say that we don't have the interest in supporting it that is blatantly false. Our heart is in this program.

Mr. McDONNELL. I didn't want to leave the impression that we are absolutely at the end of our credit and can't borrow more. We can't go out now and get additional credit. However, we have lines of credit where we have hundreds of millions of dollars we can borrow if we need. What we can't do is issue a lot more brand-new debt, but we have the leeway if we have to to invest more money and go out and borrow it.

Mr. LANESE. If we were to walk away from all the claims we have, and those are modest, we have a total of \$600 million in claims pre-tax filed that we have taken to our balance sheet; all programs.

If you look at the balance sheet of McDonnell Douglas and you said okay, assume you don't get any claims, assume that you come up with zero and you have to stay where you are right now, everything that you have argued is wrong, you are 100 percent wrong and the government is 100 percent right. We would have a net effect on our equity to corporation of \$300 million; that is it, and no cash, because the cash is already out. Take our equity of \$3.5 billion, reduce it by 300, we have \$1.5 billion to \$1.8 billion in debt. Even at that level, we would still have one of the best balance sheets in the industry at the end of the year.

So there is a great deal of disinformation on this and it has been very trying for us to try to clear up the facts on this.

RETIREE HEALTH BENEFIT TERMINATION

Mr. DIXON. There is a lot of disinformation and one of the things I would like you to explain is the company's decision to terminate retired employment benefits.

If you would take me through this decision frame by frame rather than a summary.

Mr. McDONNELL. Good. You are referring to retiree health care where we in effect terminated the company-funded retiree health care plan, but at the same time, we provided each of our retirees

with a supplement from the pension plan that they could then use to purchase the same retiree health care for the next four years. So it basically left our retirees unaffected for the next four years.

Let me go back to two factors; why the four years.

Mr. DIXON. I would like to know why that decision was made and then why four years, and also what action do you anticipate taking, if any, as it relates to those retirees?

Mr. McDONNELL. Good.

At the end of 1992, a new accounting rule, FAS-106, went into being that required companies to anticipate ahead what retiree health care costs will be and record that as a charge against net worth. In our case, based on our plan as it stood then, that would cause a charge of about \$1.5 billion after tax, equal to about half of all of our equity. In other words, it would have reduced our equity in half.

Second, we have a pension plan that is one of the best funded pension plans in the United States. We have a plan that has substantially more funding in it than is required for our pensions. One hundred percent more than required for our pensions—what our people did was come up with a creative approach to in effect be able to provide a supplemental to the pension plan that did not affect our pensioners and provide that so that people could buy retiree health care.

If we had committed to providing it in perpetuity for the future, that would have required a major charge—again, this major charge against pension plan or against the company, depending on how we did it. The other factor is that we believe that in the next four years, health care delivery in the United States is going to change substantially.

Going this approach of the four years, it gives all our retirees for the next four years what they have been getting and it gives us the flexibility at that point in time of seeing what makes sense based on what is the health care system in the United States at that time.

In the letter that we sent to our retirees on this, we had a statement that said we are committed to providing our retirees access to affordable, quality health care, and we are committed to that. What we aren't able to do at this point in time is determine exactly what form that will be after 1996, but we are committed to providing our retirees access to affordable quality health care.

Mr. MURTHA. Will the gentleman yield? The funding of the pension plan, was that a charge to the government?

Mr. McDONNELL. The funding—the original funding of the pension plan—

Mr. MURTHA. As you go along, I assume that is part of the cost of the overall operations.

Mr. McDONNELL. What we put into the pension plan is part of that cost.

Mr. MURTHA. Is there any question at this time by the government that you have some obligation for that overfunding?

Mr. McDONNELL. In fact, by doing this—creating a supplement to the pension does benefit the U.S. Government. In other words, because we also put into our overhead and it gets charged as appropriate accounts, any retiree health care.

Mr. LANESE. Sir, I believe I understand your question. Senator Metzenbaum's committee asked, I believe it was the GAO, but it may have been the IG, to see whether or not the government has actually paid for moneys as part of this, for example, benefits to retirees and then we have withheld those benefits.

The answer to that study is no, but the original pension plan obviously was funded with a combination of government funds and McDonnell Douglas funds and over the years we have invested that wisely so as a result the government has not had to pay anything for funding our pension plans for a number of years now.

Mr. MURTHA. It is guaranteed by the government so that is fully funded?

Mr. LANESE. Yes. We have a \$2.5 billion obligation and we have \$5 billion in assets. It is 100 percent funded.

Mr. DIXON. Does this plan, as I understand it, affect roughly 8,000 workers?

Mr. McDONNELL. No, it is a lot more. This plan affects all of our non-unionized workers.

Mr. DIXON. It does not impact the union workers?

Mr. McDONNELL. That is subject to negotiation.

Mr. DIXON. But you modified non-union workers health plan?

Mr. McDONNELL. At least for the next four years there is no impact on them.

Mr. DIXON. I realize for the next four years. So you have no legal obligation to continue funding that plan, do you?

Mr. McDONNELL. No, we don't.

Mr. DIXON. So it is a moral obligation and you will see what happens down the road?

Mr. McDONNELL. We are committed to providing our retirees with affordable health care. We feel an obligation to our retirees.

Mr. DIXON. It turns out that the union retirees have a better benefit plan than non-union so they paid a penalty for not joining the union.

Mr. McDONNELL. Between now and 1996, there is no difference. It depends what happens after 1996.

Mr. DIXON. And this helped your balance sheet? That was the motivating factor?

Mr. McDONNELL. It is both in terms of balance sheet; that is right. Potentially half of our equity would have been tied up. From a cash flow point of view, this helps cash flow because the company does not have to pay for retiree health. That comes from the pension supplement.

Mr. DIXON. I understand. Thank you, Mr. Chairman.

[CLERK'S NOTE.—Questions submitted by Mr. Dixon and the answers thereto follow:]

C-17 PROGRAM

Question. In your written testimony, you indicated that McDonnell Douglas reported record earnings compared to any first quarter in your history. However, the Air Force indicated that McDonnell Douglas could be losing close to \$1.5 billion on the development contract of the C-17 program. In January, the Deputy Inspector General released a report on the C-17 program and the finan-

cial condition of McDonnell Douglas Corporation. The report raised questions about the management and financial integrity of the C-17 program. Could you expand how McDonnell Douglas experienced record earnings in the first quarter and also explain how the C-17 program will achieve profitability this year?

Answer. MDC has projected that the C-17 program will be profitable for the year 1993. Accounting rules require any losses (excluding period costs) projected for a contract to be recorded immediately. Accordingly, losses on FSED and initial production contracts have been recorded over the last several years as they have been projected. During 1993, we expect profits from contracts covering Lots 4 and 5 production aircraft will more than offset period costs still remaining to be recorded on FSED and Lots 1 and 2 initial production aircraft. MDC statements did not mean the program would be profitable from inception of FSED, only that it would be profitable during 1993. These projections were based on current estimates at completion.

Question. The GAO report also indicated that the Lot III production contract will be over ceiling. Can you state definitely that the Lot III contract will not be over ceiling? Are you aware of any discussions, plans or actions taken by your managers to purposely slip the production schedules to help mitigate the short term cash flow problems of your company?

Answer. MDC's current projections do not show the Lot 3 production contract over ceiling.

Question. McDonnell Douglas Corporation's recent termination of retiree health benefits has left an estimated 8,000 Southern Californians without company-paid health benefits. Did McDonnell Douglas conduct any type of analysis on how the benefit termination would impact the retirees or the community before making your decision to terminate the benefits. If so, please provide this analysis for the record.

Answer. MDC terminated company-paid retiree health care for non-union employees and retirees. However, concurrent with this action, MDC (i) instituted retiree-paid health care, and (ii) provided an additional four year pension benefit to the non-union retirees. The additional benefit, net of withholding taxes, approximates the expected average cost of benefits for the four year period. MDC is committed to provide retirees access to affordable retiree health care after the four years. Since 8,000 southern Californians were not left without health insurance, we do not expect any negative effect on the community.

Question. The retiree-funded health care trust fund McDonnell Douglas established is set to expire after four years, leaving retirees with inadequate protection or with no health care at all. Hasn't McDonnell simply decided to place the burden of health care costs squarely on the shoulders of Medicare, retirees, public clinics and ultimately, the taxpayers?

Answer. No, MDC has not simply decided to place the burden of health care on the shoulders of Medicare, retirees, public clinics and ultimately, the taxpayers. MDC is committed to providing our retirees access to quality health care. However, actions taken by

the Government with regard to health care may impact MDC's future health care decisions. MDC will continue to review this area to determine what actions, if any, will be required to ensure that our retirees have access to quality, affordable health care.

[CLERK'S NOTE.—End of questions submitted by Mr. Dixon.]

Mr. MURTHA. Mr. Sabo.

Mr. SABO. Just a follow-up question. Where do those retirees get their health coverage now? Can they continue to participate in your plan and make the payment or do they have to find coverage elsewhere?

Mr. McDONNELL. They are still completely covered. They take the supplement, pay it into the company, and the company uses that to pay the same—

Mr. SABO. The check does not go to the employee?

Mr. McDONNELL. The employee, in effect, checks it off and says "Use this for my retiree health" and he keeps on getting exactly the same retiree health he has been getting.

Mr. LANESE. What happens is we provided a one-time pension benefit and the amount of that benefit was grossed up for taxes, so that as a retiree, you would have the ability to buy from McDonnell Douglas four years of health care upfront. So we set up the equivalent to a 401 K plan. You get a check for \$18,000, simultaneously that goes into a fund. You check off a box as to whether you want to use this as a direct purchase of health care or whether you want to purchase health care on your own and have it go into a true 401 K plan.

That is something you decide based on your tax bracket. It goes into the pool and we have grossed it up for taxes because it is income to you so you have enough money to pay taxes. Half our people get more as a result of this because the way the taxes are grossed up, you have a surplus when you deduct the medical costs off your IRS form.

Mr. SABO. What is the average number of retirees?

Mr. LANESE. I am not sure. I would have to look.

Mr. McDONNELL. I think it is 20,000 on the non-union.

Mr. LANESE. About half is non-union; 40,000 in total. Half non-union.

Mr. MURTHA. Mr. Darden?

C-17 TEST PROGRAM SCHEDULE

Mr. DARDEN. Thank you, Mr. Chairman.

Mr. McDonnell, it was reported, I believe in last week's Aviation Week and Space Technology that the Air Force wants to expand its Flight Test program to 135 aircraft months from 77 aircraft months.

I would like to know what your position is on whether or not this test program ought to be expanded to what has been reported as the desire of the Air Force.

Who is going to be responsible for paying for this expanded test program if there is to be one? Could you tell us a little about the reserve funds that were set aside last year as to whether or not it would be paid for out of the reserve funds and a little bit about how will the depletion of the reserve funds, if they do go for this

expanded flight test, affect the overall financial stability of the company?

Mr. SWAIN. The Air Force is conducting the test program at Edwards Air Force Base so they manage the test program. They have reset the schedule to 135 months, which results in testing in November 1994 that I stated earlier. That is the current plan.

We are supporting them according to our contract. There is a condition in the contract that says if the test program goes beyond 80 months, we can apply for an equitable adjustment to the contract. We have not worked out with the Air Force on the details of that. Do they pay all? Do we split it, or what?

Mr. DARDEN. I understand that it was reported that you could pay for this expanded test program with reserve funds set aside last year.

Could you tell us what purpose the reserve funds were originally intended for?

Mr. SWAIN. Two categories: to protect our financial position against unknowns in our program, protect ourselves somewhat against performance changes in performing to the contract and protecting for issues like this. So it is a category ranging from engineering through production to buying more parts and suppliers. We established a reserve fund for the wing upgrade that we had last year.

Mr. DARDEN. How much money is in this reserve fund?

Mr. SWAIN. At this date on the 2108 contract, which is development and the first six productions we have a little over \$100 million in reserves.

Mr. DARDEN. I understand that you intend to negotiate with the Air Force the effect of the expanded test program over 80 aircraft months?

Mr. SWAIN. That is correct.

Mr. DARDEN. So depending on the outcome of negotiations, it would be whether or not a certain amount of these fund would be depleted?

Mr. SWAIN. That is correct.

Mr. McDONNELL. If I may add one other item, how might it affect financial availability of the company—I can assure you that however this turns out, it does not impact the financial viability of McDonnell Douglas. We have got plenty of overall financial capability to handle however this turns out.

Mr. DARDEN. I know other aerospace companies have told me that by supporting one program in effect you are subsidizing or keeping the overhead costs of another program down.

What would be the effect if the F-18E and F were cancelled? What would be the effect of that on the overall ability of the company to build the C-17?

Mr. McDONNELL. We should still be able to build it. The FA-18 is built in St. Louis. The C-17 is built in Long Beach, so from an overhead pool point of view, there is only a marginal impact. If FA-18 were cancelled, it would be a major blow to the corporation in terms of our overall business level. We would have to lay off thousands of additional people, but we would be able to downsize ourselves to the point we were viable for the level of business we were.

When the A-12 was cancelled, we had to lay off 7,000 people in St. Louis, but we did it and with no major impact on the FA-18. You have to take tough management action and get the company down to the size that is appropriate for the business level that you have.

Mr. DARDEN. You probably answered this question earlier, but just to give you a chance to clarify the record, some Wall Street analysts believe that the C-17 will continue to pose a major financial risk to the company. In fact, Morgan Stanley analyst Phil Friedman was quoted as saying that termination of the program would eliminate a financial overhang and be slightly positive in the company. Could you comment on this analysis?

Mr. McDONNELL. I would say he is myopic. From a very near-term purely cash point of view, maybe we would be a bit ahead, but the C-17 program is one of the two most important long-term programs for McDonnell Douglas Corporation, the FA-18 being the other one. For it to be cancelled would be a major long-term blow. We would have to lay off thousands of people, not only us, but our subcontractors and the country would be laying off tens of thousands of people. From our point of view, clearly it is nowhere near even neutral. It would be a major blow to our corporation.

Mr. LANESE. You know what you tend to find with financial analysts in general is they tend to be very shortsighted. From their standpoint, they like what General Dynamics did. They would love for us to liquidate the company because you would accumulate all this cash and be able to return all this cash to shareholders.

We are in this for the long term. We are proud of being an aerospace company and we are going to remain an aerospace company.

Mr. DARDEN. So the long term as a source of—

Mr. LANESE. That is critical. They would rather have us have more cash upfront to dividend the shareholders. We think we can get the best value for shareholders by being a sustainable aerospace company over the years and that is our focus and that is our strategy.

Mr. DIXON. Mr. Chairman, Mr. Dicks did not ask all of his questions and I would ask they be submitted for a response.

[CLERK'S NOTE.—Questions submitted by Mr. Dicks and the answers thereto follow:]

Question. Do the Air Force contracts with McDonnell Douglas provide for health care benefits for both employees and retirees?

Answer. Health care benefits for employees and retirees are included in Air Force contracts as allocated overhead on a forecasted basis in accordance with existing Federal Acquisition Regulations. Health care benefits are not called out or provided for specifically in contracts.

Question. Is there a dollar for dollar reimbursement for employee health care costs under Air Force contracts?

Answer. Under fixed-price contracts, health care costs are forecasted and included in the fixed price as overhead. The amounts are negotiated and fixed and do not change if actual costs increase or decrease. Under cost-type contracts, reimbursement is based on actual expenditures up to a pre-determined contract ceiling price.

Question. Is McDonnell Douglas now negotiating with the Air Force and DoD to now reduce prices on some contracts to return

the funds that covered the cost of future retiree health benefits, as reported in the LA Times?

Answer. Recognizing an uncertainty regarding the funding of future retiree health care costs, on 12 March 1992, MDC and the U.S. Government agreed to incorporate a reopener clause with a downward only adjustment into MDC contracts (excluding competitive awards and very small contracts). This reopener clause ensures that if MDC does not incur retiree health care costs in the future, contract prices which included these costs will be appropriately reduced. To date, the cost of future retiree health benefits has not been billed by MDC or paid by DoD. All MDC contracts containing the clause will have their price adjusted downward to reflect any retiree health care cost not funded.

Question. Mr. McDonnell, you recently testified before Mr. Conyers and the Government Operations Committee, that McDonnell Douglas could absorb the \$1.2 billion overrun on the C-17 contract. Is that accurate? If so, why can't McDonnell Douglas also absorb a one time charge of \$1.3 billion to cover its retiree health care benefits?

Answer. MDC has absorbed the losses on the C-17 program over the last several years and based on current estimates, except for period costs, do not expect to absorb any additional losses. MDC did absorb a net charge of \$.9 billion in 1992 to cover retiree health care benefits. However, since retiree health care cost has grown at an extremely fast pace and is expected to continue to grow in the future, MDC implemented changes to not only reduce the one time charge caused by implementing Financial Accounting Standard (FAS) 106 but substantially reduce retiree health care costs on an annual basis. These changes will benefit both MDC shareholders and MDC Government customers.

Question. Do you think the termination of these benefits helps McDonnell Douglas report these first quarter profits?

Answer. Several large contributors to earnings as stated in MDC's press release (attached) announcing 1993 first quarter earnings of \$216 million were (i) successful resolution of tax issues (\$85 million) and (ii) sale of MDISI (\$37 million). By eliminating company paid retiree health care benefits for non-union retirees, MDC reduced the required accrual under the provisions of FAS 106 for the first quarter of 1993. The amount accrued was \$15 million (net of income tax). The estimated accrual for the 1st quarter of 1993 under FAS 106 without the change to retiree health care benefits has not been determined. The FAS 106 amount calculated to restate the 1st quarter of 1992 which was prior to the change, was \$47 million after tax. The impact to the 1st quarter 1993 earnings from changes to pay-as-you-go retiree health care costs, those costs allocated to Government contracts was immaterial.

Question. Should we consider labor policies as a factor in determining who is awarded a Government contract? If we do not, companies who pay retirement health benefits are at a disadvantage are they not?

Answer. Retiree health care benefits are only one component of labor policies. Other components, such as labor rates, vacation benefits, workers compensation benefits, health benefits for active employees and numerous other fringe benefits, also encompass labor

practices. These labor policies differ by company, by state, by tax jurisdiction, etc. Due to its multi-faceted and subjective nature, we believe labor policies should not be a factor in determining who is awarded a Government contract.

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks.]

1993 FIRST QUARTER FINANCIAL CONDITION

Mr. VISCLOSKY. I would like to revisit a couple of issues raised on the financial side. The term "positive cash flow" has been used a lot today. In terms of that, I understand there are a number of components that contribute to that, including asset sales.

Would you elaborate on asset sales, especially for the last calendar year, 1992 and the impact that has had on cash flow?

Mr. McDONNELL. Right.

In the first quarter of 1993, we sold two businesses for a total of about—

Mr. LANESE. \$200 million in cash in the first quarter and we will get an additional \$70 million in the second quarter that is tied into those same sales. So a total of \$270 million in the first six months of the year now. 1992 was only \$70 million. In 1991, at the end of the year, we had the MTSI sale and that was about \$200 million.

Mr. VISCLOSKY. \$200 million was the first quarter of this year?

Mr. LANESE. In 1991. We have had an ongoing program starting around 1989 to divest the information systems business of McDonnell Douglas because it was not a strategic part of the company. We have had kind of an ongoing program. That business has resulted in about a billion dollars in revenue over the last four years, but it has been spread out.

The most recent pieces were about \$200 million in 1991; \$70 million or \$80 million in 1992—in December, we did outsourcing, too. We had about \$270 million in 1992. We have had approximately 200 thus far this year and there will be another 70, so \$270 million for 1993. So \$270 million in 1993, \$270 million in 1992, and in 1991, we had \$200 million.

Mr. McDONNELL. In addition, in 1993, we do expect to have some additional asset sales, business sales. Of that billion dollars, we expect in the way of positive cash flow about half of that to come from the proceeds on asset sales and the other half, about half a billion dollars from internal cash generated.

Mr. VISCLOSKY. I was going to get to that—when you talk about positive cash flow, a billion dollars in 1993, you are talking about your net cash flow?

Mr. McDONNELL. Net overall, free cash that can be used to pay down debt or whatever else.

Mr. VISCLOSKY. You are saying your anticipation for 1993 is one-half of your positive cash flow that will be generated through sales?

Mr. McDONNELL. Approximately.

Mr. VISCLOSKY. And half would be through internal channels.

In terms of internal changes and the representations that have been made to me that some of the job components would be cut-backs on the MD-11, there would be recovery of some claims, lower R&D spending, and general administrative cost control.

You have talked about other types of development cutbacks, including the MD-12. Would those be the major components in the internal generation of positive cash flow?

Mr. McDONNELL. Depending on how you look at it. Depending on which side of the sphere you are looking on. A lot of it is coming from generated cash flow of all our major programs other than C-17 and a few others. Most of our programs are generating positive cash flow. We are also doing some of the things you just said. We are holding in check capital spending. We are holding in check administrative costs. We do not have any claims recovery. We are not assuming in claims recovery for 1993.

Mr. LANESE. In fact, where most of it comes from, the real number internally is \$800 million, but we are putting \$300 million back in other spending. Net is \$500 million. The bulk of that comes from working capital reductions and earnings. Earnings as you said are the result of pooling more costs out, taking more overhead out, maybe reducing R&D spending as we are on the MD-12. We don't have a receptive market and customer base. We have cut down in those areas and that has improved our earnings and that results in higher earnings and cash flow for us.

Mr. VISCLOSKY. The contribution of the asset sales, ball-park, what was the ratio for 1992, the year completed, in terms of your net—your positive cash flow? What percentage was represented by the \$270 billion in sales?

Mr. McDONNELL. In 1992, our overall net cash flow was negative. We were increasing our debt in 1992.

Mr. LANESE. Negative 400.

Mr. VISCLOSKY. So positive cash flow as of the first quarter of 1993?

Mr. McDONNELL. For the year 1993.

Mr. LANESE. In the first quarter, but we expect over the course of the year it will be a billion dollars in total. It happened to be \$300 million in the first quarter of the year. That means we are tracking well for our target.

Mr. VISCLOSKY. If your base is half being sales, you are anticipating another half billion dollars worth of sales?

Mr. McDONNELL. We have already about a quarter of a billion dollars. We are already halfway there.

Mr. VISCLOSKY. So you would be talking about another 230 approximately?

Mr. McDONNELL. That is much too accurate. We would anticipate during the course of the year we will have additional asset sales, but at this point we are not in a position to be able to say will it come to 50 or 8 more or less.

We feel confident we will get a total of a billion dollars. It may end up being more from internal or from additional sales.

Mr. VISCLOSKY. In terms of asset sales, you are talking about sales of about \$750 million between 1992 and 1993. You have significant sales in the three years prior to 1992.

How much more is left to be sold subsequent to 1993 in terms of asset sales relative to reconfiguration of the company?

Mr. McDONNELL. As of the first quarter of 1993, we have completed all sales of our information sales business so that is now complete.

We are looking at within our aerospace businesses, any business that isn't core, isn't strategic, to determine whether some of those maybe should be sold.

There are already two that we have announced that we have not yet won. We have indicated that our helicopter business we intend either to joint venture or to sell if we can during 1993 because it is a business we have concluded. There are too many helicopter companies in the world and it would take too much investment, too much time, too much risk for us to become one of the top two or so in the world which we believe is necessary for long-term success.

Mr. VISCLOSKY. My sense is if you can't be one or two in the market—

Mr. McDONNELL. If we don't have a good plan on how to get there, we are better off getting rid of that business and concentrating our resources in those where we can be. There are a number of our businesses where we clearly are like fighter aircraft, military transport.

Mr. VISCLOSKY. In terms of cash flow, once the assets are gone, they are gone.

Mr. McDONNELL. It is a one-time event on selling of an asset.

Mr. VISCLOSKY. So in terms of positive cash flow circumstances, that is an issue to qualify—

Mr. McDONNELL. We will be solidly cash flow positive in 1993 from normal operation. We intend from normal operation to remain solidly positive beyond 1993.

Mr. VISCLOSKY. There was discussion on the commercial side that for the last ten quarters, you have now turned a profit on your commercial sales.

In the materials that you provided us, you indicated that you made \$14 million in operating and earning profit on the commercial aircraft compared with \$30 million in 1992's first quarter, then which included \$23 million in operating recorded sales of an advancement payment for forfeiture by a leasing company.

Was the \$23 million for 1992?

Mr. LANESE. Yes.

Mr. VISCLOSKY. So 1992 was the inflated figure?

Mr. McDONNELL. That is correct.

Mr. VISCLOSKY. That is a non-recurring item as well?

Mr. McDONNELL. But at the same time you have some that are negatives, too. You have some positives that are one time, some negatives that are one time.

Mr. VISCLOSKY. Did you have major payment forfeiture in fiscal year 1993?

Mr. LANESE. We did, but did not take it to earnings. We put it into inventory. There is a complex accounting for MD-11, pooled accounting. For the first quarter, we had revenues of 85 to 86 million similar to the \$23 million you just asked about for 1992.

We could have taken it to income or we could have run it through our inventory account. We thought the inventory account was a more appropriate place to put those funds because of the way we account for the MD-11 program. As a result, even though we had forfeitures, \$86 million in cash, it does not reflect the inner-income statement.

Mr. VISCLOSKY. There was a decline in R&D in the first quarter of 1993 relative to 1992 of \$60 million on the commercial side.

In terms of your operating statement for the first quarter of 1992, your total figure company-wide is \$132 million compared to \$72 million in 1993.

My sense is that you reduced your R&D on the military side by about \$14 million and by about \$46 million, quarter to quarter on the civilian side.

Mr. LANESE. That is probably fairly close because I know when you look at—I know the military side is very close to what it was last year. 1993 versus 1992; on the commercial side, two things happen. One, we are spending much more on the MD-12 development in the first quarter 1992 and that is at a very modest level now.

Secondly, there are certain R&D credits that we have gotten from engine manufacturers on the MD-90 program and some of those payments came to us as part of the development efforts on that program in the first quarter so it tended to push that overall development down compared to last year.

Mr. VISCLOSKY. In terms of the \$72 million for the first quarter, how much of that is still attributable to the commercial side?

Mr. LANESE. Our commercial is probably down \$40 million to \$45 million in total and——

Mr. VISCLOSKY. Is that on an annual basis?

Mr. LANESE. That is in the first quarter.

What it is for the entire year, I am not sure.

Mr. McDONNELL. The question was if we spent \$72 in the first quarter, how much of that was commercial. The commercial piece is probably somewhere under \$20 million in total, I would imagine, for the first quarter.

Mr. LANESE. In terms of what comprises than \$72 million, our commercial piece is probably under \$20 million. It is fairly modest.

Mr. VISCLOSKY. You have made the representation that you have had an operating profit on the commercial side for 10 quarters in a row. My point is, you would have had a loss, in terms of your operating income for the commercial side if you had not reduced your spending for R&D by \$46 million since your profit was only \$14 million.

I am not saying you lost money. I simply want to point out that you made money on the commercial side only because you significantly cut your R&D in future product development.

Mr. McDONNELL. Expenses are discretionary. We are spending at the levels to be able to maintain a profit. In fact, the major reduction, it would have been foolhardy for us to continue spending that level because right now the airlines are not interested in buying new airplanes. So it would be foolhardy now for us to continue spending R&D at the level that we were the previous year when we were going toward having a MD-12.

Mr. VISCLOSKY. I am not saying your decision was irrational. However, the representation was made that you have made money on the commercial side ten quarters in a row. Some would be by non-forfeiture payments and that means you are not going to sell those aircraft.

Additionally, if only \$20 million in R&D expenditures are left on the commercial side, your discretion to develop new products is limited and your discretion to reduce further costs is also limited.

I am not suggesting the numbers were manipulated. Even if you take the best case scenario and you are going to continue to build the C-17, that means we need to know if you are going to be around ten years from now, and looking ahead to production development and sales of a proposed MD-12, if you are not putting R&D in, the MD-12 might not be there to sell.

Mr. McDONNELL. In terms of our long-term future on the commercial airplanes, it is based on our ability to put together an international partnership where we get other partners who will be contributing a good bit of the development's money necessary. We are going to operate that business at a positive cash flow earnings basis and we are going to do whatever it takes to be able to operate it on that basis.

Mr. VISCLOSKY. If you could for the record in general narrative form tell us in each of those ten quarters a couple of key figures in terms of what the R&D was and what some of the non-recurring income was in terms of forfeiture payments that were made.

Finally, representations have also been made relative to the significant investment the company itself has made into the C-17 program.

The company has said the contract is important to McDonnell, that the C-17 factors significantly in the company's future plans, and that you are looking at it as one of your primary investment programs.

In terms of a general description for 1993-1994, what type of additional investment is the company looking to make and what range of figures are we talking about?

Mr. McDONNELL. In the C-17?

Mr. VISCLOSKY. Yes, sir.

Mr. SWAIN. In terms—three categories, in terms of cash, cash flow to support the program. It will be between \$200 million and \$300 million of additional cash flow in addition to the \$1.5 billion that we currently have in the program. That is during this year, 1993. We expect then starting in 1994 to start becoming cash, incrementally cash positive.

1994 ought to generate cash on the program. In addition, we have R&D costs that we invest in on the program. We have about \$14 million of R&D and about \$20 million worth of capital and all mission costs that we will invest during 1993.

Mr. VISCLOSKY. Mr. Chairman, I yield. Thank you.

Mr. MURTHA. Gentlemen, thank you very much. As I mentioned to you last time we met, I have a friend of mine who is doing an independent financial assessment of your company, and I am sure he will verify what you have already told us. We are still looking to see if there is any alternative like buying the MD-11 right off the shelf that might do the work or buying a 767 or 747, but we still have some things to look at. Whichever way we go, of course, we will have to talk to the Armed Services Committee about it. I appreciate your taking the time to testify before the committee. I appreciate your commitment to the program because that is one thing you

certainly could establish and you have established for us. Thank you very much.

Mr. McDONNELL. Thank you for the opportunity.

Mr. MURTHA. We will have additional questions for the record. The committee is adjourned until 10 a.m. tomorrow.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

C-17 ENGINE SELECTION

Question. The C-17 is powered by a 4 F117 engines which are essentially the same engines as Pratt & Whitney's (P&W) commercial PW 2040 which has long been in service with private airfleets on a worldwide basis. Describe to the committee how the P&W engine was originally selected by McDonnell Douglas to power the C-17.

Answer. DAC initiated the selection of a suitable powerplant for the C-X by sending a request for quotation (RFQ) to General Electric and Pratt & Whitney. GE proposed two derivatives of the existing C-X engine, P&W proposed a new engine. All three engines were high by-pass and were planned to be FAA certified prior to the C-17 first flight.

The proposals were evaluated for operational utility, life cycle cost, design approach, and adequacy of program. Although both proposals were judged approximately equal in many of the categories evaluated during the selection process, the P&W proposal was judged slightly better.

Question. The engine had a performance requirement with regard to specific fuel consumption which it presently does not meet. Why was an engine with a known performance deficiency chosen?

Answer. At the time of the proposal evaluation and subsequent selection, the performance deficiency was not a known factor. In fact, the P&W proposal was judged slightly better than the GE proposal for engine performance although both proposals were judged equally for risk of meeting installed engine performance.

Question. How many engines did McDonnell Douglas directly acquire from Pratt & Whitney before they were broken out in a separate Air Force contract as government furnished equipment?

Answer. The following is a break down of engines procured by McDonnell Douglas.

| Lot | Total engines | Comments |
|-----------------|---------------|-----------------------|
| FSED..... | 9 | 1 ground test engine. |
| LOT 1..... | 8 | |
| LOT 11..... | 16 | |
| LOT 111..... | 16 | |
| SPARES..... | 4 | |
| ICS spares..... | 6 | |
| Total..... | 59 | |

Question. What was the average unit cost of the engines acquired directly by MDAC? What is the unit cost today?

Answer. Average unit cost of MDA acquired engines is \$3,860,656, (as reflected by P&W invoices). MDA has no data on the

current engine acquisition. Engines are currently supplied as Government Furnished Equipment.

Question. How do you explain the difference?

Answer. N/A.

Question. It is the Committee's understanding that MDAC and P&W are currently negotiating for P&W to "buy its way out" of the SFC requirement for the engines acquired directly by MDAC. Has a settlement been reached?

Answer. No, a settlement has not been reached.

Question. What were its terms?

Answer. No settlement has been reached.

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, MAY 4, 1993.

PROCUREMENT, MARINE CORPS/RESEARCH AND DEVELOPMENT

WITNESS

MAJ. GEN. JAMES A. BRABHAM, USMC, COMMANDER, MARINE CORPS SYSTEMS COMMAND

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning, the Committee considers the \$259.5 million Marine Corps research and development budget and the \$483.5 million Marine Corps procurement budget. The principal witness is Major General James A. Brabham, Commander, Marine Corps Systems Command. General, we will place your prepared statement in the record. Please summarize it for us and then we will proceed to questions.

I will tell you that I am concerned that the Marine Corps procurement funding level is so low. I am afraid that we are really going to run into a problem down the road. So I need some figures about where the budget shortfalls are.

Mr. MURTHA. General Brabham.

SUMMARY STATEMENT OF GENERAL BRABHAM

General BRABHAM. As always, it is a privilege to be here and to represent before the Committee the requirements of your Marines.

As always, the Marine Corps is fully committed to supporting our primary weapon system and that is the individual fighting Marine. That has been and remains our focus. We feel an absolute obligation to provide those Marines the very best we can in terms of training, equipment, and leadership in order that they may survive and prevail on the field of combat.

The Fiscal Year 1994 budget request, although very austere, is focused on those requirements. The modern battlefield is one of greatly extended lethal reach. In order for our commanders to effectively employ relatively small mobile forces against enemy weaknesses and to avoid enemy strengths, the commander must have the best picture of the battlefield interactive with those of joint forces.

Therefore, a significant portion of our request is for the joint command, control, communications and intelligence systems that will allow our commanders to effectively employ the Marines.

Our Marine forces also must have adequate tactical mobility in order to achieve and exploit successes on an extended battlefield.

In our case, that extension includes operational maneuver from the sea. We therefore are requesting the advanced assault amphibian-enhancements to our combat proven light armored family of ve-

hicles, and additional numbers of our logistics family of support vehicles.

The individual Marine must also be very survivable and lethal, and to that end, improved weaponry such as the short-range anti-tank weapon, Predator, is needed. Better night-fighting capabilities for our Marines with the enhanced night vision goggles and state-of-the-art training devices are also in our request.

The Marine Enhancement Program has provided great strides in taking care of our Marines. We are closely coordinating that program with the Soldier Enhancement Program and similar efforts of the Special Operations Command.

To stretch these very scarce dollars, we are critically scrubbing every one of our requirements through the concept based requirements system. We are looking at our material management systems and policies for efficiency, and we are insisting on an absolute minimum of service-unique developments.

Approximately 75 percent of the funds we are requesting will be spent through joint and non-developmental acquisition sources.

Nevertheless, we simply must increase the relative portion of our funds, the relative size of our modernization account in the future, if we are to truly modernize the force and take care of our Marines.

The funding level in the short term is sufficient. For the long term it will not do. To modernize and equip a force of about 177,000 Marines, which is a force that will keep our operational tempo and forward deployments to an acceptable level of 50 percent for operating forces, we require about a billion dollars a year in procurement and \$250 million to \$300 million in R&D for the long haul.

To survive at our current level, we are using some excess PWR ammunition for training which will allow us to get along for a few years. But in the long haul, we have to approximately double this portion of our account if we are going to take care of our Marines and keep them survivable.

We are funding the essential communications and command and control needs that will keep us interoperable and moving forward with the joint forces.

We are funding a minimum of training ammunition, and we are looking closely at keeping the Marines survivable. But, advanced missile anti-tank systems and advanced joint command and control systems will be beyond our reach at this current level of funding.

Sir, it is a privilege for me to be here representing the young Marines and their requirements. I have submitted a prepared statement and would be glad to answer your questions.

Mr. MURTHA. Thank you very much, General.

[The biographical sketch and statement of General Brabham follows:]

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BY THE HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF
MAJOR GENERAL JAMES A. BRABHAM
UNITED STATES MARINE CORPS
COMMANDER
MARINE CORPS SYSTEMS COMMAND
BEFORE THE
SUBCOMMITTEE ON DEFENSE
HOUSE APPROPRIATIONS COMMITTEE
CONCERNING
MARINE CORPS ALLOCATION OF
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, NAVY
AND
PROCUREMENT, MARINE CORPS

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UNITED STATES MARINE CORPS

HEADQUARTERS MARINE CORPS, DIVISION OF PUBLIC AFFAIRS
WASHINGTON, D.C. 20380, (703) 614-4309



MAJOR GENERAL JAMES A. BRABHAM JR., USMC

Major General James A. Brabham Jr., is currently serving as the Commander, Marine Corps Systems Command, Quantico, Va.

General Brabham was born August 31, 1939 in Upper Darby, Pennsylvania. He received his commission in June 1962 following graduation from Cornell University, where he earned a Bachelor of Civil Engineering degree.

In December 1962, after completing The Basic School at Quantico, Va., he was assigned to the 1st Marine Division, Camp Pendleton, Calif., where he served as a platoon leader in the 1st Bridge Company, FMF, Pacific. He commenced a two-year tour of duty at the Marine Barracks, Pearl Harbor in 1964, serving as guard officer and barracks personnel officer. He reported to the 1st Shore Party Battalion in Chu Lai, Vietnam in August 1966, where he served as Commanding Officer of Company A, and subsequently Commanding Officer of Headquarters and Service Company.

From August 1967 to July 1968, he attended the U.S. Army Engineer School, Fort Belvoir, Va. Upon graduation, he was assigned to Headquarters Marine Corps, Washington, D.C., for duty as the Engineer Equipment Programming Officer in the Office of the Assistant Chief of Staff (G-4).

Ordered back to Vietnam in April 1971, he served as the Engineer Advisor to the Vietnamese Marine Corps, remaining in that capacity through the North Vietnamese Easter offensive of April 1972.

Upon reassignment to Twentynine Palms, Calif., he assumed command of Provisional Maintenance Company, Force Troops, FMF Pacific. He commanded that unit until assignment to the U.S. Naval Academy in August 1975. During his tour at the Naval Academy, he served as a Company Officer, Instructor of Leadership, and Executive Assistant to the Commandant of Midshipmen.

Returning overseas in August 1978, he served as Executive Officer of Camp Garcia, Vieques, Puerto Rico, until December 1978.

General Brabham's next assignment was as the Program Coordinator for the Air Cushion Landing Craft Development and Acquisition Program on the staff of the Chief of Naval Operations, Washington, D.C. On July 2, 1981, he assumed command of the 2d Combat Engineer Battalion, Camp Lejeune, N.C., and commanded that unit until July 1983, when he was assigned duties as the Assistant Chief of Staff, G-4, 2d Marine Division.

From August 1984 until July 1986, General Brabham was assigned duties as the Assistant Chief of Staff, G-4, II MAF, Camp Lejeune, N.C. General Brabham was next assigned as the Deputy Director for Logistics, J-4, USCENTCOM, MacDill AFB, Fla. While serving in this capacity, he was selected for promotion to brigadier general in November 1988. He was advanced to brigadier general on June 23, 1989, and was assigned duty as the Commanding General, 1st Force Service Support Group, FMF, Camp Pendleton, Calif., on July 14, 1989. He commanded that Unit during its participation in Operations Desert Shield and Desert Storm. On July 8, 1991, he was assigned duty as Director, Marine Air-Ground Training and Education Center. He was advanced to his present grade on March 10, 1992, and assumed his current assignment on June 29, 1992.

His decorations and medals include: the Distinguished Service Medal; Defense Superior Service Medal; Legion of Merit; Meritorious Service Medal; Navy Commendation Medal with Combat "V" and gold stars in lieu of a second and third award; Navy Achievement Medal; Presidential Unit Citation; Navy Unit Commendation; Meritorious Unit Commendation; Vietnam Service Medal; Southwest Asia Service Medal; Republic of Vietnam Cross of Gallantry with gold star; Vietnamese Honor Medal, 1st Class; Republic of Vietnam Meritorious Unit Citation (Gallantry Cross Color); Republic of Vietnam Meritorious Unit Citation (Civil Actions Color, 1st Class); the Republic of Vietnam Campaign Medal; and the Kuwait Liberation Medal.

Major General Brabham is married to the former Sally Snyder of Port Clinton, Ohio. They have three sons, Paul, Jim and Joe.

(Revised Oct. 6, 1992 HQMC)



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PREPARED STATEMENT OF MAJOR GENERAL JAMES A. BRABHAM
COMMANDER, MARINE CORPS SYSTEMS COMMAND

INTRODUCTION

Mr. Chairman and distinguished members of the committee, this is my first appearance before you as Commander of the Marine Corps Systems Command. I thank you for this opportunity to present our fiscal year 1994 budget request for the Marine Corps portion of the Navy Research, Development, Test and Evaluation (RDT&E,N) and the Procurement, Marine Corps (PMC) appropriations.

The Marine Corps' future promises to be as challenging and even more complex than its past. Recent events clearly demonstrate increased global instability, the likelihood of simultaneous and disparate regional actions, and the resulting requirement to commit military force. In terms of routine forward deployments, training exercises, and operational commitments, in just the past year, the Marine Corps has been heavily engaged from Somalia, Korea, Haiti, and the Mediterranean and Adriatic to Los Angeles and south Florida. In earlier testimony, our Commandant, General Carl Mundy, aptly referred to the Marines as a "certain force for an uncertain world". While it is evident that the near-term threat will be DIFFERENT, it is also clear that it has NOT DIMINISHED in the range of roles and missions relevant to the Marine Corps.

Staying prepared for the full spectrum of possible roles, while simultaneously reducing end strength, demands that our remaining forces be ready, relevant and capable. Even a cursory look at recent and ongoing operations highlights the enduring relevance and flexibility of afloat, maritime prepositioning and rapidly deployable Naval forces. From disaster relief to forward presence, humanitarian intervention to forcible entry, and peacemaking to peacekeeping, our nation expects its Marines to go in harm's way and TO PREVAIL in protecting and projecting American interests, influence, and ideals. With your support we will continue to meet that expectation.

Declining resources present a serious challenge which has our utmost attention. A rigorous Combat Development Process, energetic mission area assessments to focus our planning and programming, and disciplined acquisition are placing unprecedented emphasis and scrutiny on WARFIGHTING CAPABILITY and AFFORDABILITY. As we concentrate on achieving a high yield for our investment dollars, notable trends in our fiscal year 1994 budget request include:

* As the foundation for success across all other warfare areas, Command, Control, Communications and Intelligence (C3I) has been allocated OVER FORTY PERCENT of our procurement funds. This includes significant investments in radios, intelligence support

equipment, aviation and artillery command and control systems, and position location and navigation capabilities. Additionally, THIRTY-SIX PERCENT of our research and development (R&D) effort focuses on these areas.

* Almost NINE PERCENT of procurement funding supports modifications and product improvements to enhance the performance of current equipment and systems. These are high leverage efforts to address deficiencies and integrate new technology into such proven performers as the Amphibious Assault and Light Armored Vehicles. The allocation of THIRTY-EIGHT PERCENT of our R&D to similar efforts will help us examine future capability upgrades.

In all our investments we are emphasizing and enforcing the spirit of the DoD 5000 series directives for deliberate and disciplined development and acquisition. We are balancing improved performance, risk, affordability, and potential life cycle savings. We are requiring demonstrated performance throughout the milestone approval process. Where possible we are relying on Non-developmental Items (NDI). Current systems, where they remain competitive, are being maintained and upgraded rather than replaced. Battlefield interoperability and joint service acquisition have become standards for doing business.

In acquisition planning and execution we are aggressively focused on economy and effectiveness in addressing future operating requirements within projected resource levels. Also, we are actively improving the level of knowledge and professional expertise of our acquisition workforce through the Defense Acquisition Workforce Improvement Act (DAWIA) training and certification process.

The remainder of this statement will discuss in detail the Research, Development, Test and Evaluation (RDT&E,N) and Procurement, Marine Corps (PMC) appropriations.

MARINE CORPS GROUND ALLOCATION OF RDT&E,N

In fiscal year 1993, Congress authorized and appropriated \$249 million for research and development of Marine Corps ground items. We are requesting that you approve \$259 million in fiscal year 1994.

The fiscal year 1994 Marine Corps tactical, ground research and development request continues to concentrate on (1) development of a future replacement for and upgrade to our current assault amphibious vehicle, (2) gaining and maintaining joint interoperability with our communications, command, control and intelligence systems, and (3) countermine efforts. We are participating in joint efforts wherever possible, and plan to take advantage of the other Services' development efforts for weaponry, vehicles, computers and software systems.

We are requesting \$20.6 million for the Advanced Amphibious Assault (AAA) program, which continues to be our highest development priority within the Marine Corps ground allocation of RDT&E. With Concept Exploration of this program nearly complete, all of our operational effectiveness analyses and war games clearly indicate that the Advanced Assault Amphibious Vehicle (AAAV) alternative is the preferred solution for our ship-to-shore and land mobility requirements. The AAAV's performance characteristics as a self deploying, high water speed, assault

amphibian, and its inherent multi-mission capabilities make it the best choice as our principle means of surface mobility for our Marines. The ability to support the rapid build-up of combat power ashore is also a key advantage of the AAV relative to other alternatives.

Both the FMC and General Dynamics near full-scale Advanced Assault Amphibious Vehicle (AAAV) hydro-dynamic test rigs have successfully demonstrated speeds in excess of 30 knots on the water. Each contractor is updating their AAAV Conceptual Design, completing technical risk-reducing experiments, and beginning development of a full-scale AAAV automotive test rig. These activities will be completed by the end of fiscal year 1994. The Assistant Secretary of the Navy's (Research, Development and Acquisition) independent technical assessment team has strongly recommended that this program proceed with development of a full-scale prototype vehicle.

Current plans are to conduct the Milestone I Defense Acquisition Board Review of the AAAV during the second quarter of fiscal year 1994. During the Demonstration and Validation phase in fiscal year 1995, we plan to award a contract to fabricate a full system prototype.

We are increasing investment in our amphibious science and technology (S&T) base by transitioning mature technologies from

exploratory development to advanced technology demonstrations to evaluate Fleet Marine Force operational applicability. Our fiscal year 1994 request includes \$17.2 million for exploratory development and \$35.8 million for advanced technology demonstrations. These amphibious S&T efforts involve mine neutralization, obstacle detection, weaponry, battlefield electronic support, and engine propulsion technology. Joint advanced technology demonstrations are requested in stand-off mine detection, tactical directed energy warfare, and mine countermeasures in the surf zone and craft landing zone.

Intelligence improvements in data collection, fusion, analysis and dissemination are requested for the Joint Service Imagery Processing System (\$8.7 million), Intelligence Analysis Systems (\$6.0 million), the Tactical Electronic Reconnaissance Processing and Evaluation System (\$5.9 million) and the Tactical Remote Sensor System (\$1.9 million).

Funds are requested to continue improvements in air defense and aviation command and control systems to support tactical missile defense and enhance mobility. We are requesting \$2.1 million for Air Defense Missile Systems Improvements, \$4.0 million for Aviation Radar Improvements, and \$4.9 million for software improvements to our Tactical Air Operations Module. Additionally, we are requesting \$1.5 million for our Improved Direct Air Support Center.

To support automated ground command and control, we are requesting \$8.0 million for the Tactical Combat Operations system and \$11.6 million for the multiservice Advanced Field Artillery Tactical Data System.

Continuing communications, and command and control improvements include \$3.3 million for Unit Level Circuit and Data Switch, and \$4.4 million for Communications Ancillary Equipment. This level of funding will support participation with the Army in Demand Assign Multiple Access (DAMA) upgrades and development of man-portable MILSTAR satellite communications terminals.

Interoperability and systems integration improvements are addressed with a request for \$7.6 million for Marine Corps Tactical Command and Control Systems (Systems Engineering and Integration). This effort provides an integrated architecture and specifications for common command and control software and hardware. Additionally, we are requesting \$1.4 million for Joint Interoperability of Tactical Command and Control Systems (JINTACCS) and \$3.6 million for the Tactical System Intra/Interoperability Program (TACSIIP). These systems integration and interoperability efforts are being closely coordinated to eliminate redundant effort.

To increase infantry weapons lethality and the survivability of individual Marines, we are requesting \$21.1 million for the

Short Range Anti-tank Weapon program now titled PREDATOR. PREDATOR will provide the individual Soldier or Marine a main battle tank killer which is disposable, proliferable in large numbers, fire-and-forget, and capable of soft-launch for firing from within enclosed spaces. In accordance with Congressional guidance, joint program status is being pursued with the Army. Additionally, \$9.3 million is requested for Marine Corps Ground Weapons improvements to include the joint Thermal Imaging System.

We thank you and appreciate your support in providing \$6.0 million for the Marine Enhancement Program in fiscal year 1993. This program enhances the survivability of the infantryman, the lethality of his weapons, and his total effectiveness in combat. Since inception of the program, many projects have been initiated to exploit existing technology and expedite acquisition. Numerous items were not only evaluated, but made operational and life-saving contributions during Desert Shield/Storm. This streamlined process promises near-term results and is a stated priority of our Commandant. We have included \$6.9 million dollars in this budget request for the Marine Enhancement Program, which is coordinated with the Army's Soldier Enhancement Program and efforts of the Special Operations Command.

Our Marine Corps Program Wide Support request contains \$6.7 million for Marine Corps Studies and Analyses, such as Cost and Operational Effectiveness Analyses and Mission Area Analyses. It

contains \$3.3 million for the Marine Corps Operational Test & Evaluation Activity and \$4.4 million for the Human Resources Management and Forecasting project.

The fiscal year 1994 Marine Corps research and development request provides for the attainment of tactically and technically superior, operationally effective combat capabilities. Your continued support for the Marine Corps' development efforts is essential to the accomplishment of our mission within the reality of rapidly changing global events and national priorities.

PROCUREMENT, MARINE CORPS

In fiscal year 1993 Congress authorized and appropriated \$824.6 million for Marine Corps procurement programs. The fiscal year 1994 request of \$483.5 million is at its most austere level, in real terms, since fiscal year 1981. This level of funding forces us to focus on only the most essential modernization and sustainability requirements.

Budget Activity 1, Ammunition

The fiscal year 1994 budget request reflects a significant reduction in funds to support ammunition. However, this reduction will have a minimal impact on short-term operational readiness, as current inventory levels and prior year funding will adequately support training and sustainability.

Training of our Marines in basic combat skills remains paramount. The fiscal year 1994 budget request is adequate to conduct essential training to keep our Marines ready to fight.

Budget Activity 2 - Weapons and Tracked Combat Vehicles

The Marine Corps' emphasis on tactical mobility and flexibility will continue by improving our Assault Amphibious

Vehicle (AAV-7A1) through a robust Product Improvement Program (PIP).

During fiscal year 1994, our Light Armored Vehicle (LAV) will be modified by addition of a thermal sight. This sight will provide significantly increased reconnaissance capability and accuracy of fire during periods of darkness or battlefield obscuration.

Our fiscal year 1994 request includes \$65.5 million to procure 21 Light Armored Vehicles - Air Defense (LAV-AD) vehicles. The LAV-AD provides a system with the speed, mobility and swim capability to accompany rapidly maneuvering Light Armored Reconnaissance (LAR) battalions in a high threat air defense situation. The weapons system consists of a rapid fire 25mm gun and dual STINGER Standard Vehicle Missile Launchers with four STINGERS each, for a total of eight ready-to-fire missiles. The fire control system integrates a ballistic computer, laser range finder, Forward Looking Infrared Sight, multi-mode auto-tracker, video display, and optical sights. The system will have fire-on-the-move capability and also be capable of engaging ground targets. A vehicle navigation system is included.

Our individual infantry and artillery weapons are receiving modest enhancements to improve their battlefield utility and extend their service life. Increased infantry weapon rates of

fire, system weight reductions and maintainability are areas being improved. The towed mobility, maintenance reliability, and braking safety of the M198 howitzer are also being improved.

Budget Activity 3 - Guided Missiles and Equipment

In fiscal year 1994, we continue our procurement of the Pedestal Mounted Stinger (PMS) to provide close-in air defense of the Marine Air Ground Task Force. PMS is a lightweight, highly mobile, gun-missile hybrid mounted on a High Mobility Multi-purpose Wheeled Vehicle (HMMWV). Using state of the art technology in Forward Looking Infra-Red (FLIR) and Laser Range Finder (LRF) systems, PMS revolutionizes the concept of operation for Stinger gunners by providing eight ready-to-fire missiles for a rapid shoot-on-the-move, day/night, adverse weather capability. PMS complements LAV-AD in providing low altitude air defense coverage for command and support elements.

The HAWK modification program is continuing and will provide significant modernization to our current system. Our efforts in fiscal year 1994 include HAWK engineering change proposals designed for greater reliability and increased target acquisition capability.

Budget Activity 4 - Communications and Electronics Equipment

Communication, Command and Control (C3) assets are force and capability multipliers across the full spectrum of combat and combat support functions. In fiscal year 1994, the Marine Corps continues procurement of new systems and modernization of existing equipment to ensure that we have the critical capability to communicate. This includes joint service and combined force communications as well as those internal to a Marine Air Ground Task Force (MAGTF).

In fiscal year 1994, we begin procurement of the following C3 items: the AN/MS-63 PIP Tactical Communications Center; Joint Tactical Information Distribution System (JTIDS); and the multiservice Advanced Field Artillery Tactical Data System (AFATDS).

The AN/MS-63 is a computer assisted, tactical message terminal that allows the tactical commander to have either General Security or Special Security communications capability. This PIP provides for equipment changes necessary to allow for AUTODIN interface capability between deployed tactical units and the Defense Message System (DMS).

The Joint Tactical Information Distribution System (JTIDS) provides a high capacity, jam-resistant, secure digital

communications capability for tactical command and control and sensor host platforms.

Procurement of the multiservice Advanced Field Artillery Tactical Data System (AFATDS) will provide digital automated command and control for fire support coordination and tactical fire direction functions to all Fire Support Coordination Centers (FSCC's), Fire Direction Centers (FDC's), Direct Air Support Centers (DASC's), and Supporting Arms Coordination Centers (SACC's). It will enhance the fire support capabilities and coordination of surface, naval, and close air support for the Marine Air Ground Task Force (MAGTF).

To promote the readiness of high technology systems on the battlefield, an Electronic Test, Measurement, and Diagnostic Equipment (TMDE) Repair Facility is being provided. This facility consists of a series of work stations configured to provide repair capability in the functional areas of automotive TMDE, electronic frequency counters, high power radio frequency TMDE, oscilloscopes, multimeters, small missile systems TMDE and microprocessor-based TMDE.

We continue procurement of the Global Positioning System (GPS), the AN/TSC-96 Satellite Communication Terminal PIP, the Single Channel Ground and Air Radio System (SINCGARS) and the Advanced Tactical Air Command Central (ATACC). Other funding

within this budget activity will continue procurement of vehicle mounted radios and equipment, Unit Level Circuit Switch upgrades, electronic test equipment, product modernization and improvement, and Automated Data Processing equipment.

Finally, we thank you for the increase in funding for night vision and intelligence support equipment. Our most marked improvement in Marine infantry combat capability has been in night and low visibility combat, including combat support operations. Additionally, these increases have significantly expanded our tactical intelligence processing and dissemination capabilities.

Budget Activity 5 - Support Vehicles

In fiscal year 1994, we will continue to replace our aging commercial vehicles, fill out our trailer inventory and modify tactical vehicles for continued safe operation.

We will continue procurement of the Logistics Vehicle System (LVS). The LVS consists of a 16-ton class, high mobility, articulated front power unit that may be combined with any of five interchangeable rear body units (trailers). We thank you for the increase for the LVS program in fiscal year 1993.

Budget Activity 6 - Engineer and Other Equipment

Tactical support items such as air conditioners, generators, fuel and water systems, and material handling equipment remain critical for operating our weapons systems and sustaining our forces. Additionally, work on specialized equipment for conducting obstacle breaching, mine countermeasures and other tactical mobility operations, while under fire, is being continued.

The Field Clinical Laboratory is a new start in this budget activity for fiscal year 1994. It will replace current laboratories which do not meet the severe demands of combat medicine.

In fiscal year 1994, we are requesting funds to continue our buy of shelters, containers, chemical defense equipment, base support equipment and training devices for use by our Marines worldwide. The training devices line funds a variety of models, simulators and trainers which will provide less expensive, alternative methods for training Marines in combat and related skills. For example, the Remote Engagement Target System (RETS) is an automated firing range that will provide realistic training to both infantry and armor units, sharpening defensive and offensive combat shooting skills.

Budget Activity 7 - Spares and Repair Parts

Maintenance is an important aspect of readiness and sustainability. As directed by Congress, we have implemented new procedures for funding replenishment spares. Procurement funding in this request provides initial and war reserve spares to field and sustain new systems and equipment.

CONCLUSION

Over the last decade, Congress has helped provide the Nation a Marine Corps that is relevant, ready, capable, and an enabling force for broader action. Your support, in fiscal year 1993, allowed us to accelerate planned acquisitions and dramatically improve our near-term capabilities in intelligence and night vision. Additionally, persistent deficiencies in container handling and combat excavation were addressed, as well as a wide range of promising initiatives in the Soldier/Marine Enhancement Program.

The fiscal year 1994 budget request will sustain these trends, including improvement of our full exploitation of national intelligence capabilities for information that is timely, accurate and makes a difference. We will maintain the technological edge which has so ably served us in the past. Overall, the fiscal year 1994 procurement and R&D requests are balanced to provide priority capabilities to our operational forces.

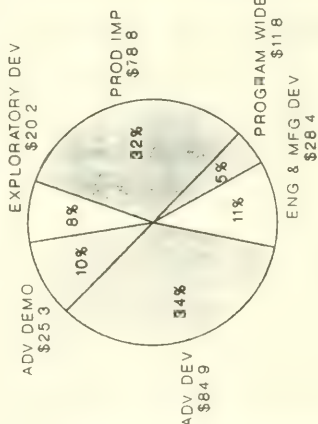
With your assistance, the Marine Corps will remain poised and ready to deter or respond to all forms of international instability. We will not only fulfill our broad and enduring missions, but in so doing, satisfy our absolute obligation to provide the best equipment and support possible for our most

important asset, the individual Marine. For those who have chosen to be called Marines we can do no less. On their behalf and that of our Commandant, I offer our gratitude for your continuing support.

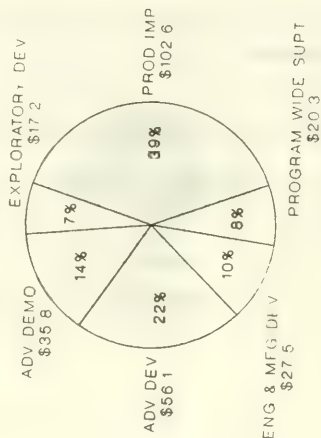
MARINE CORPS RDT&E

(\$M)

FY 1993



FY 1994



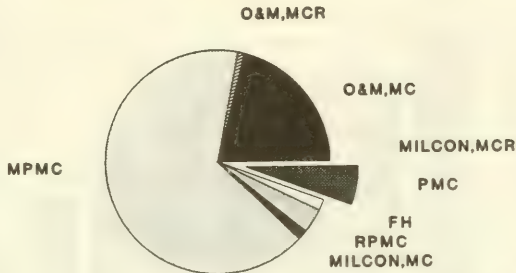
TOTALS

\$249.4

\$259.5

PROCUREMENT, MARINE CORPS

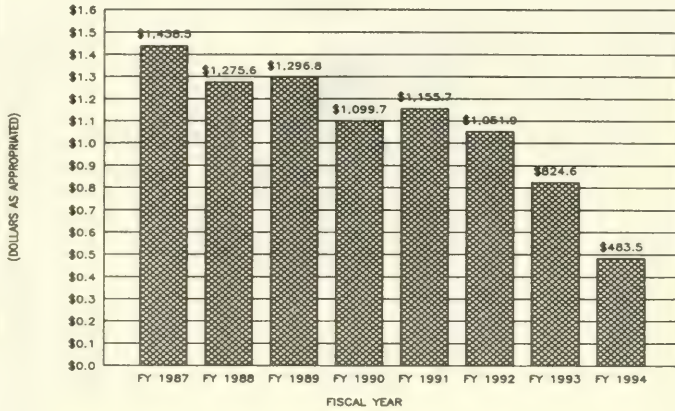
USMC TOTAL OBLIGATIONAL AUTHORITY
(\$ IN MILLIONS)



FY 1994

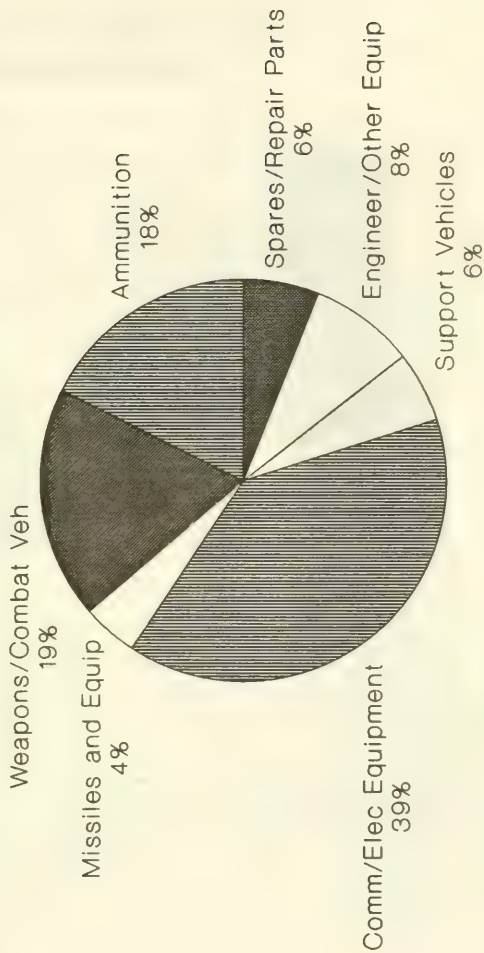
| APPROPRIATION TITLE | | FY 1994 | |
|---|------------|------------------|----------------|
| | | AMOUNT | PERCENT |
| MILITARY PERSONNEL, MARINE CORPS | MPMC | 5678.7 | 65.94% |
| MILITARY PERSONNEL, MARINE CORPS RESERVE | RPMC | 308.0 | 3.58% |
| OPERATION & MAINTENANCE, MARINE CORPS | O&M,MC | 1818.0 | 21.11% |
| OPERATION & MAINTENANCE, MARINE CORPS RESERVE | O&M,MCR | 75.1 | 0.87% |
| PROCUREMENT, MARINE CORPS | PMC | 483.5 | 5.61% |
| FAMILY HOUSING, MARINE CORPS ALLOCATION | FH | 132.4 | 1.54% |
| MILITARY CONSTRUCTION, MARINE CORPS | MILCON,MC | 114.9 | 1.33% |
| MILITARY CONSTRUCTION, MARINE CORPS RESERVE | MILCON,MCR | 1.4 | 0.02% |
| TOTAL | | \$8,612.0 | 100.00% |

PROCUREMENT, MARINE CORPS

TOTAL OBLIGATIONAL AUTHORITY

| BUDGET ACTIVITY | (DOLLARS IN MILLIONS) | | |
|---|-----------------------|---------|---------|
| | FY 1992 | FY 1993 | FY 1994 |
| 1 - Ammunition | 538.3 | 186.1 | 85.0 |
| 2 - Weapons & Tracked Combat Vehicles | 31.6 | 117.9 | 90.5 |
| 3 - Guided Missiles & Equipment | 46.0 | 52.1 | 21.4 |
| 4 - Communication & Electronics Equipment | 234.7 | 239.0 | 189.5 |
| 5 - Support Vehicles | 77.4 | 83.5 | 27.6 |
| 6 - Engineer & Other Equipment | 92.6 | 121.0 | 40.4 |
| 7 - Spares & Repair Parts | 31.3 | 25.0 | 29.1 |
| <u>TOTAL</u> | \$1,051.9 | \$824.6 | \$483.5 |

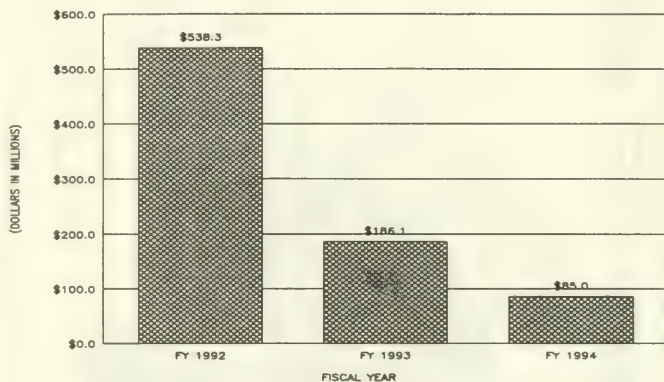
FY 1994 DISTRIBUTION BY PMC BUDGET ACTIVITY



TOTAL: \$483.5 MILLION

PROCUREMENT, MARINE CORPS

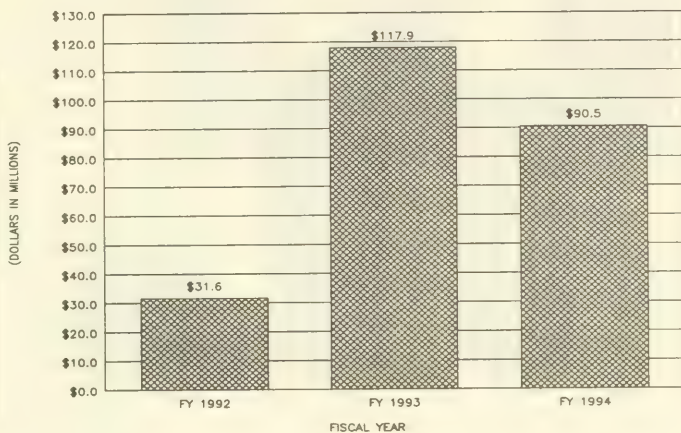
BUDGET ACTIVITY 1 - AMMUNITION



| NOMENCLATURE | | (DOLLARS IN MILLIONS) | | |
|--------------|--------------------------------|-----------------------|---------|---------|
| | | FY 1992 | FY 1993 | FY 1994 |
| 1 | 5.56 MM, All Types | 24.8 | 13.2 | 1.2 |
| 2 | 7.62 MM, All Types | 40.8 | 9.0 | 0.0 |
| 3 | Linear Charges, All Types | 13.4 | 1.2 | 0.2 |
| 4 | .50 Caliber | 38.3 | 10.3 | 0.8 |
| 5 | 40 MM, All Types | 62.2 | 25.2 | 4.2 |
| 6-8 | 60 MM Ammunition, All Types | 36.7 | 4.6 | 0.0 |
| 9-11 | 81 MM Ammunition, All Types | 41.6 | 7.2 | 17.4 |
| 12-15 | 120MM Ammunition, All Types | 40.8 | 0.0 | 7.1 |
| 16-17 | 155 MM Ammunition | 133.4 | 81.2 | 0.0 |
| 18-19 | Fuzes, All Types | 0.0 | 0.0 | 18.3 |
| 20 | 83 MM Rocket HEAA (SMAW) | 19.9 | 15.5 | 0.0 |
| 21 | Light Anti-Armor Weapon (AT-4) | 20.3 | 0.0 | 0.0 |
| 22-25 | 25 MM Ammunition, All Types | 34.3 | 2.9 | 0.8 |
| 26 | 9 MM Ammunition, All Types | 0.0 | 0.0 | 2.2 |
| 27 | Mines, All Types | 0.0 | 0.0 | 3.9 |
| 28 | Grenades, All Types | 14.7 | 2.1 | 0.0 |
| 29 | Rockets, All Types | 0.0 | 0.0 | 10.3 |
| 30 | Ammo Modernization | 10.2 | 7.0 | 7.8 |
| 31 | Ammo Demilitarization | 0.0 | 0.0 | 7.2 |
| 32 | Items Less Than <\$2 Million | 6.9 | 6.7 | 3.6 |
| TOTAL | | \$538.3 | \$186.1 | \$85.0 |

PROCUREMENT, MARINE CORPS

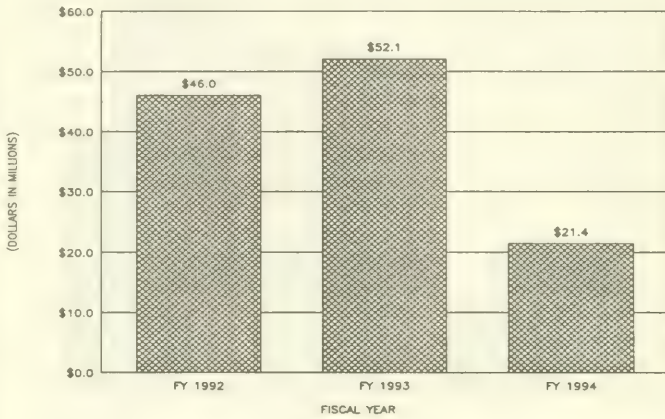
BUDGET ACTIVITY 2 - WEAPONS AND TRACKED COMBAT VEHICLES



| P-1 | NOMENCLATURE | (DOLLARS IN MILLIONS) | | | | | |
|-------|--|-----------------------|--------|---------|---------|---------|--------|
| | | FY 1992 | | FY 1993 | | FY 1994 | |
| | | QTY / | \$ | QTY / | \$ | QTY / | \$ |
| 33 | AAV7A1 PIP | - / | 12.3 | - / | 16.6 | - / | 15.1 |
| 34 | Light Armored Vehicle PIP | - / | 0.0 | - / | 0.0 | - / | 6.9 |
| 35 | Light Armored Vehicle | - / | 1.0 | - / | 10.0 | 21 / | 65.5 |
| 36 | Modification Kits (Tracked Vehicles) | - / | 1.5 | - / | 16.1 | - / | 1.0 |
| 37 | Items Less Than \$2 Million (Tracked Vehicles) | - / | 0.0 | - / | 0.6 | - / | 0.0 |
| 38 | MLRS | - / | 0.0 | - / | 66.8 | - / | 0.0 |
| 39 | Modification Kits (Artillery & Other) | - / | 0.1 | - / | 5.8 | - / | 2.0 |
| 40 | Items Less Than \$2 Million (All Other) | - / | 0.7 | - / | 2.0 | - / | 0.0 |
| 41 | Machine Gun .50 Caliber M2 | 274 / | 2.4 | - / | 0.0 | - / | 0.0 |
| 42 | M60E3 PIP | - / | 8.4 | - / | 0.0 | - / | 0.0 |
| 43 | MK-19 40MM Machine Gun | 374 / | 5.2 | - / | 0.0 | - / | 0.0 |
| TOTAL | | | \$31.6 | | \$117.9 | | \$90.5 |

PROCUREMENT, MARINE CORPS

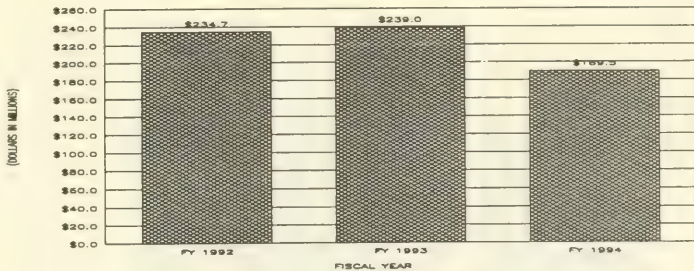
BUDGET ACTIVITY 3 - GUIDED MISSILES AND EQUIPMENT



| P-I | NOMENCLATURE | (DOLLARS IN MILLIONS) | | | | | |
|-------|--------------------------------|-----------------------|--------|---------|--------|---------|--------|
| | | FY 1992 | | FY 1993 | | FY 1994 | |
| | | QTY | / \$ | QTY | / \$ | QTY | / \$ |
| 44 | HAWK Modifications | - | / 3.1 | - | / 24.0 | - | / 2.1 |
| 45-46 | Pedestal Mounted Stinger (PMS) | 5 | / 12.9 | 26 | / 28.1 | 24 | / 19.2 |
| 47 | TOW Missile | 2168 | / 30.0 | - | / 0.0 | - | / 0.0 |
| 48 | Missile Modification | - | / 0.0 | - | / 0.0 | - | / 0.1 |
| 49 | Items Less Than \$2 Million | - | / 0.0 | - | / 0.0 | - | / 0.0 |
| TOTAL | | \$46.0 | | \$52.1 | | \$21.4 | |

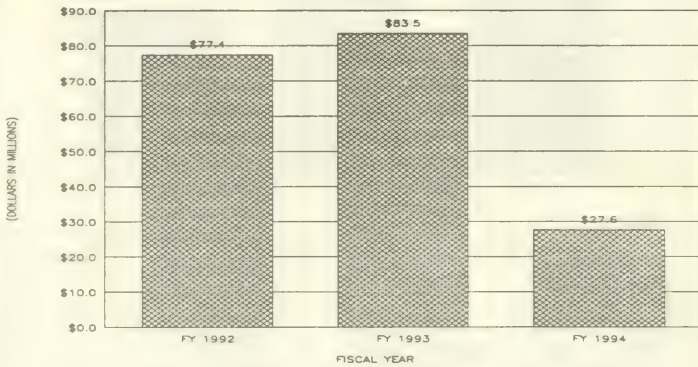
PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 4 - COMMUNICATIONS AND ELECTRONICS EQUIPMENT



| P-I | NOMENCLATURE | (DOLLARS IN MILLIONS) | | | | | |
|-------|---|-----------------------|---------|---------|---------|---------|---------|
| | | FY 1992 | | FY 1993 | | FY 1994 | |
| | | QTY | \$ | QTY | \$ | QTY | \$ |
| 50 | Manpack Radios & Equipment | - | / 1.3 | - | / 3.0 | - | / 0.0 |
| 51 | Global Positioning System | - | / 0.0 | 1222 | / 12.7 | 1453 | / 14.6 |
| 52 | Vehicle Mounted Radios & Equipment | - | / 30.5 | - | / 5.2 | - | / 0.1 |
| 53 | AN/GRC-171B(V)4 | - | / 0.0 | 421 | / 19.0 | - | / 0.0 |
| 54 | TSC-96 PIP Fleet Sat Communications Terminal | - | / 0.0 | 5 | / 1.9 | 5 | / 1.7 |
| 55 | Unit Level Circuit Switch (ULCS) | - | / 12.6 | - | / 7.1 | - | / 12.0 |
| 56 | Tactical Communication Center Equipment | - | / 0.0 | - | / 0.0 | - | / 2.9 |
| 57 | JTIDS INTG | - | / 0.0 | - | / 0.0 | - | / 1.7 |
| 58 | Contract Admin/Audit | - | / 0.0 | - | / 0.0 | - | / 9.8 |
| 59 | Oscilloscope | 1704 | / 2.0 | - | / 0.0 | - | / 0.0 |
| 60 | Signal Generator | 200 | / 2.0 | 200 | / 2.0 | - | / 0.0 |
| 61 | Electronic Test Equipment | - | / 4.8 | - | / 6.9 | - | / 4.8 |
| 62 | SINGARS Radio System | - | / 52.4 | - | / 58.8 | - | / 46.1 |
| 63 | Modification Kits (Tel) | - | / 5.2 | - | / 3.9 | - | / 3.6 |
| 64 | Items Less Than \$2 Million (Tel) | - | / 2.9 | - | / 2.4 | - | / 3.1 |
| 65 | Position Location Reporting System (PLRS) | - | / 7.9 | - | / 0.0 | - | / 3.3 |
| 66 | Tactical Air Operations Module (TAOM) | 4 | / 27.0 | - | / 0.0 | - | / 2.5 |
| 67 | Advanced Tactical Air Command Central (ATACC) | - | / 0.0 | 1 | / 6.8 | 1 | / 9.6 |
| 68 | Marine Tactical Command & Control System (MTACCS) | - | / 7.2 | - | / 8.3 | - | / 2.8 |
| 69 | Advanced Field Artillery Tact Data Sys (AFATDS) | - | / 0.0 | - | / 0.0 | 214 | / 9.6 |
| 70 | Meteorological Systems | - | / 0.0 | 14.0 | / 6.0 | - | / 0.0 |
| 71 | Intelligence Support Equipment | - | / 29.4 | - | / 41.4 | - | / 21.6 |
| 72 | Modification Kits (Intel) | - | / 4.2 | - | / 0.5 | - | / 5.2 |
| 73 | Items Less Than \$2 Million (Intel) | - | / 1.6 | - | / 0.8 | - | / 2.7 |
| 74 | Electronic TMDE Repair Facility | - | / 0.0 | - | / 0.0 | - | / 0.7 |
| 75 | Mechanical TMDE | - | / 1.1 | - | / 0.9 | - | / 0.9 |
| 76 | Night Vision Equipment | - | / 24.3 | - | / 30.1 | - | / 12.4 |
| 77 | ADP Equipment | - | / 14.3 | - | / 15.8 | - | / 14.5 |
| 78 | Test, Calibration & Maintenance Support | - | / 1.0 | - | / 0.9 | - | / 0.9 |
| 79 | Modification Kits (NonTel) | - | / 2.8 | - | / 3.7 | - | / 2.4 |
| 80 | Items Less Than \$2 Million (NonTel) | - | / 0.2 | - | / 0.9 | - | / 0.0 |
| TOTAL | | | \$234.7 | | \$239.0 | | \$189.5 |

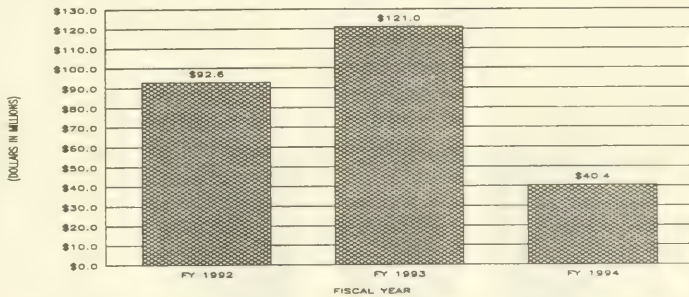
PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 5 - SUPPORT VEHICLES

| | | (DOLLARS IN MILLIONS) | | | | | |
|-------|--|-----------------------|------|----------|------|----------|------|
| | | QTY / \$ | | QTY / \$ | | QTY / \$ | |
| 81 | Commercial Passenger Vehicles | 45 / | 2.0 | 46 / | 2.2 | 96 / | 1.7 |
| 82 | Commercial Cargo Vehicles | - / | 9.4 | - / | 8.8 | - / | 8.3 |
| 83 | High Mobility Multipurpose Wheeled Vehicle (HMMWV) | 1113 / | 40.3 | 1355 / | 47.3 | - / | 0.0 |
| 84 | Logistics Vehicle System | 127 / | 13.8 | 164 / | 18.0 | 81 / | 12.1 |
| 85 | Trailers, All Types | - / | 7.8 | - / | 3.1 | - / | 1.3 |
| 86 | Modification Kits | - / | 3.7 | - / | 3.5 | - / | 4.2 |
| 87 | Items Less Than \$2 Million | - / | 0.4 | - / | 0.6 | - / | 0.0 |
| TOTAL | | \$77.4 | | \$83.5 | | \$27.6 | |

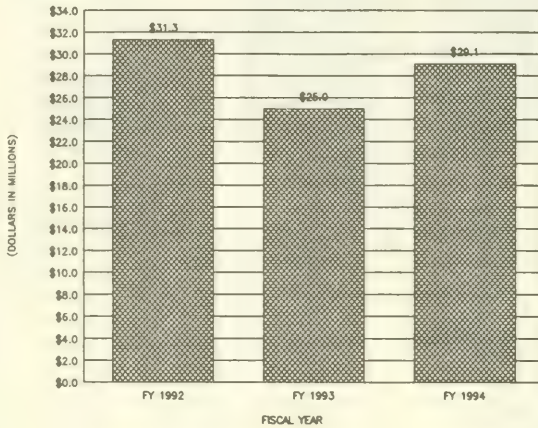
PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 6 - ENGINEER AND OTHER EQUIPMENT



| P-1 | NOMENCLATURE | (DOLLARS IN MILLIONS) | | | | | |
|-----|---|-----------------------|--------|---------|---------|---------|--------|
| | | FY 1992 | | FY 1993 | | FY 1994 | |
| | | QTY | \$ | QTY | \$ | QTY | \$ |
| 88 | Environmental Control Equipment, Assorted | - | / 5.2 | - | / 0.0 | - | / 2.0 |
| 89 | Armored Combat Earthmover | - | / 0.0 | 91 | / 63.7 | - | / 0.0 |
| 90 | Tactical Fuel/Water Systems (TFS) Equipment | - | / 5.5 | - | / 14.1 | - | / 1.1 |
| 91 | Topographic/Survey Equipment | - | / 0.0 | - | / 1.4 | - | / 0.0 |
| 92 | Bridges, All Types | - | / 6.5 | - | / 0.0 | - | / 0.0 |
| 93 | Power Equipment, Assorted | - | / 6.6 | - | / 1.3 | - | / 2.4 |
| 94 | Automatic Building Machine | - | / 0.0 | - | / 2.5 | - | / 0.0 |
| 95 | Command Support Equipment | - | / 2.0 | - | / 1.0 | - | / 1.8 |
| 96 | Amphibious Raid Equipment | - | / 0.6 | - | / 5.5 | - | / 1.8 |
| 97 | Productivity Investment | - | / 8.8 | - | / 2.3 | - | / 0.0 |
| 98 | Physical Security | - | / 1.1 | - | / 1.4 | - | / 0.7 |
| 99 | Garrison Mobile Engineer Equipment | - | / 3.0 | - | / 3.0 | - | / 2.7 |
| 100 | Telephone System | - | / 0.0 | - | / 0.0 | - | / 0.4 |
| 101 | Warehouse Modernization | - | / 1.0 | - | / 1.0 | - | / 2.2 |
| 102 | Materiel Handling Equipment | - | / 2.3 | - | / 2.2 | - | / 3.2 |
| 103 | First Destination Transportation | - | / 5.5 | - | / 3.9 | - | / 3.2 |
| 104 | Lightweight Decontamination System (LDS) | 142 | / 2.1 | 148 | / 2.1 | - | / 0.0 |
| 105 | Field Medical Equipment | - | / 0.0 | - | / 0.0 | - | / 3.5 |
| 106 | Training Devices | - | / 6.1 | - | / 8.6 | - | / 11.0 |
| 107 | Shelter Family | - | / 8.0 | - | / 0.4 | - | / 0.0 |
| 108 | Container Family | - | / 5.9 | - | / 2.8 | - | / 3.0 |
| 109 | Modification Kits | - | / 1.9 | - | / 0.0 | - | / 0.1 |
| 110 | Chemical Agent Monitor (CAM) | 27 | / 0.2 | 154 | / 0.9 | 221 | / 1.3 |
| 111 | Items Less Than \$2 Million | - | / 7.3 | - | / 2.9 | - | / 0.0 |
| 112 | Industrial/Depot Maintenance Equipment | - | / 2.4 | - | / 0.0 | - | / 0.0 |
| 113 | Drug Interdiction | - | / 10.6 | - | / 0.0 | - | / 0.0 |
| | TOTAL | | \$92.6 | | \$121.0 | | \$40.4 |

PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 7 - SPARES AND REPAIR PARTS

| P-1 | NOMENCLATURE | (DOLLARS IN MILLIONS) | | |
|-----|----------------------|-----------------------|---------------|---------------|
| | | FY 1992 | FY 1993 | FY 1994 |
| 114 | Initial Spares | 31.3 | 25.0 | 13.7 |
| 114 | Replenishment Spares | 0.0 | 0.0 | 15.4 |
| | TOTAL | \$31.3 | \$25.0 | \$29.1 |

PROCUREMENT FUNDING LEVELS

Mr. MURTHA. In your estimation, is this lower budget driven by reduced requirements?

General BRABHAM. Absolutely not, sir. This budget is driven by the total amount of authority that the commandant was allocated. In the Marine Corps, most of that allocation goes toward manpower to keep our operational forces up to the level required leaving very little for modernization.

Mr. MURTHA. So are you saying that you have a real problem here starting to slip back into the hollow force of a few years ago? This is the type of thing that may not have an impact for the next couple of years, but if you get behind, it is very hard to get caught up. Is that what you are saying?

General BRABHAM. That is absolutely correct, sir.

Mr. MURTHA. What specific items of equipment would the Marine Corps be buying in fiscal year 1994 if more funding were available?

General BRABHAM. I can provide a complete list for the record, sir.

We would increase our procurement of the SINCGARS family of radios. Right now, because of funding levels, we are stretching that buy past 2000, and we would increase our buy of the SINCGARS radios. We would also increase our buy of the night vision goggles I mentioned.

Capturing the night is vital to survival in our environment, and we need to very rapidly become more capable in that area.

We would pursue some more joint command and control enhancements such as JTIDS, which provides the ability to integrate our air control picture with that of all the other services on the battlefield. They would be the primary things, sir, but I can provide a complete list.

Mr. MURTHA. Provide a copy for the record.

[The information follows:]

If more funding was available, the Marine Corps would buy the following equipment: Shelterized Have Quick Radio Sets, Night Vision Goggles, Light Armored Vehicle Sights, Joint Tactical Information Distribution Systems, Single Channel Ground Air Radio Systems, Pedestal Mounted Stingers, Artillery Enhancements, such as the Meteorological Measuring Sets, Muzzle Velocity Systems and Modification to the M198 Howitzers, AN/UYQ-83/85 Tactical Computers and the Indoor Simulated Marksmanship Trainer.

Mr. MURTHA. General, I remember when Mr. McDade and I went into Saudi Arabia. We visited a Marine squadron where the people we talked to said it took a couple of weeks to get the communications between the ground and the air put together. We had sophisticated airplanes and troops set to go, but the communications were bad. We have been working on trying to improve that since then. Are SINCGARS part of that or is this another system?

General BRABHAM. SINCGARS is a portion. It also has other components.

Mr. MURTHA. Does this mean that we are behind in fulfilling the requirement of upgrading the communications between air and ground?

General BRABHAM. We have partially upgraded the communications between air and ground. We are not fully modern in that

area, sir. Some of the systems we are bringing on line in terms of aviation command and control, for example the Tactical Air Operations Module and the Improved Direct Air Support Centers that are in this request, improve capability.

Mr. MURTHA. When we were at Aviano, we saw part of the module that you are talking about. That is an Air Force and a Marine program. Is that something that the Marine Corps developed or the Air Force developed and you bought?

General BRABHAM. The Marine Corps was the lead agent on it. We are still buying modules for the Air National Guard at this time.

There are improvements to that module. It takes a long time to develop these systems and state-of-the-art changes so rapidly. We have funds in our request to improve the capability of the Module and the Direct Air Support Center.

Mr. MURTHA. Mr. McDade?

AMMUNITION FUNDING

Mr. McDADE. Thank you very much, Mr. Chairman.

General, welcome. Your dialog with the chairman covers a lot of issues. Did I hear you say you would need a budget of about a billion dollars a year for procurement?

General BRABHAM. That is correct, sir.

Mr. McDADE. You are at the lowest level since 1980?

General BRABHAM. 1981, sir.

Mr. McDADE. For ammunition, I see you have a \$85 million funding level. Traditionally you have been \$300 million to \$400 million level. When were you last at \$85 million?

General BRABHAM. I would have to research that, Mr. McDade. [The information follows:]

Fiscal Year 1981 was the last year in which the ammunition budget was less than \$85 million.

Mr. McDADE. If we are at \$85 million this year and this is supposed to be a good year, what does the future look like?

General BRABHAM. Ammunition is a big part of that issue sir. We have some excesses in our PWR, and we are able to offset some of that immediate shortfall from PWR. We expect that ability will dry up in about 1997. By that time, we will have to go back to a \$200 million to \$300 million ammunition budget to train our troops.

Mr. McDADE. That is if nothing happens in the interim. The morning press reports the Marines are getting ready to secure the landing areas in Bosnia. What does that do to the ammunition budget if something like that occurs?

General BRABHAM. Ammunition stockages are based upon usage and gets right into our PWR.

LOGISTICS VEHICLE SYSTEM

Mr. McDADE. There is an item for logistics vehicle systems. The bottom line, you are only going to buy 81 vehicles. Do you consider that an economic buy? Is the unit price going to be devastating because you are at 81?

General BRABHAM. The program manager reports that because of prior year tooling and the adaptability of that line, we should be able to get a competitive price against that buy.

Mr. MCDADE. Is this another number driven by the budget singularly or is this a different category?

General BRABHAM. No, sir. That is primarily to complete our requirements.

Mr. MCDADE. What are the requirements?

General BRABHAM. I will give you that for the record, Mr. McDade.

Mr. MCDADE. Thank you, Mr. Chairman.

[The information follows:]

The FY 1995-1999 requirement for the LVS is 373 front power/rear body units for a total cost of \$62 million.

PROCUREMENT FUNDING LEVEL

Mr. MURTHA. The tempo of operations has not slowed down. Yet, we are reducing the budget. You could almost pass over what you said if you didn't know better: 50 percent of the Marine Corps operating forces, or 80,000 troops are deployed 50 percent of the time. That is what it amounts to.

General BRABHAM. That is correct, sir.

Mr. MURTHA. So the requirements have not slowed down a bit and yet the budget here in procurement is being reduced well below what you feel is acceptable.

My argument with the President has been that we can accept a lower budget if the requirements or tempo of operations are less. You are confirming my concern that, even coming out of Somalia, the tempo of operations still has not slowed down.

General BRABHAM. Yes, sir. I think it is significant to think about the fact that the end of the Cold War and the transition from a massive European standoff did not really impact upon the Marine Corps.

We were not part of that theory of defense to a great degree anyway. We were a strategic reserve. As you know. Our commitment, in a regional construct with instability throughout the world, really have increased due to the end of the Cold War and the fall of the Soviet Union.

The need of the Nation for forward-deployed forces that can rapidly influence whatever is going on, be it crisis or humanitarian problems, is greater now than it even was. Our operational tempo for deployed forces has, in fact, increased.

Mr. MURTHA. Mr. Visclosky?

Mr. VISCLOSKY. Thank you, Mr. Chairman. To follow up on Mr. McDade's line of questioning, what does PWR mean?

General BRABHAM. Prepositioned War Reserves. That is our war reserve stock.

AMMUNITION FUNDING

Mr. VISCLOSKY. In terms of the ammunition, my understanding is traditionally your budget for ammunition purchase is \$300 million to \$400 million. Is that correct, General.

General BRABHAM. That is correct.

Mr. VISCLOSKY. Is that small arms relative to artillery shells or—

General BRABHAM. The entire spectrum of Marine Corps ammunition to include some types of rockets. We include artillery, small arms, that type of thing.

Mr. VISCLOSKY. In terms of the reduction this year, and Mr. McDade touched on it, that is a huge reduction. What impact is that going to have on training levels?

General BRABHAM. In the short term, we will be able to train utilizing some excesses that have been accrued in our war reserve. Within the last year, we have changed some of the computation methods. We were able to build up some stocks in prior years, and we will be able to train from excesses and war reserve stock for a few years. However, in the long term, we cannot do that.

Mr. MURTHA. When I went out to Fort Hood, I talked to the premier unit, the First Cavalry Division, one of two divisions at Fort Hood. The commanding general said he was \$4 million short in battalion training money to keep them up to the level that he felt they should be in order to deploy within 48 hours.

Now, are you going to lose some of your readiness edge with this reduction in procurement?

General BRABHAM. Not in the short term, sir, but if it is sustained in the outyears, we will, absolutely.

Mr. VISCLOSKY. General, you mentioned short-term ties and interlaced that with several years. What is the short term?

General BRABHAM. I would project that we could have lower levels of ammunition procurement for several years and still find some excesses in our war reserve to adequately train, but if carried beyond that, it will be a significant problem.

Mr. VISCLOSKY. That is assuming no further shortfall in the range of \$85 million to \$100 million?

General BRABHAM. That is correct.

Mr. VISCLOSKY. For the record, could you tell the Committee how much ammunition is lying around, because my impression is that operation and maintenance is the name of the game, but if you have enough stock, I would like to know.

General BRABHAM. I can provide that for the record, our days of ammunition in the significant categories of ammunition.

[The information follows:]

The days of ammunition for all major rounds of ammunition at the end of FY94 funded delivery period are:

| DODIC | Nomenclature | DOA FY94 |
|-------|---|----------|
| A363 | Ctg, 9MM Ball | 54 |
| A059 | Ctg, 5.56MM Ball M855 | 87 |
| A064 | Ctg, 5.56MM, 4 Ball M855/1Trcr M856 Lkd | 53 |
| A075 | Ctg, 5.56MM BIK M200, Lkd f/SAW | 80 |
| A136 | Ctg, 7.62MM NATO Match/Special Ball | 267 |
| A13F | Ctg, 7.62MM Linked 4 AP/1 TR | 42 |
| A131 | Ctg, 7.62MM Linked 4 Ball/1 Tracer | 59 |
| A518 | Ctg, .50 Cal SLAP | 31 |
| A576 | Ctg, .50 Cal Linked 4 AP/1 API-T | 76 |
| A974 | Ctg, 25MM APDS-T Linked M791 | 18 |
| A975 | Ctg, 25MM HEI-T M792 | 29 |
| A976 | Ctg, 25MM TP-T Linked M793 | 59 |

| DODIC | Nomenclature | DOA FY94 |
|-----------|--|----------|
| B508..... | Ctg, 40MM Green Smoke M715..... | 277 |
| B509..... | Ctg, 40MM Yellow Smoke M716..... | 255 |
| B519..... | Ctg, 40MM Practice M781..... | 41 |
| B535..... | Ctg, 40MM White Star Parachute M583A1..... | 76 |
| B542..... | Ctg, 40MM HEDP Linked..... | 41 |
| B584..... | Ctg, 40MM Target Practice M918..... | 455 |
| B504..... | Ctg, 40MM GSP..... | 54 |
| B546..... | Ctg, 40MM HEDP..... | 52 |
| B647..... | Ctg, 60MM Illumination..... | 72 |
| B646..... | Ctg, 60MM Smoke WP..... | 6 |
| B643..... | Ctg, 60MM HE w/Fuze M935..... | 48 |
| B642..... | Ctg, 60MM HE w/MOF..... | 9 |
| C878..... | Ctg, 81MM, HE w/MOF..... | 38 |
| C875..... | Ctg, 81MM Practice Full Range..... | 229 |
| C87X..... | 81MM Infrared Illum Covert..... | 4 |
| C870..... | Ctg, 81MM Smoke RP..... | 33 |
| C871..... | Ctg, 81MM Illum..... | 31 |
| C791..... | Ctg, 120MM HEAT-MP-T..... | 72 |
| C380..... | Ctg, 120MM APFSDS-T M829A1..... | 112 |
| C785..... | Ctg, 120MM TPCSDS-T..... | 34 |
| C784..... | Ctg, 120MM TP-T..... | 43 |
| D502..... | Proj, 155MM ADAM-S..... | 58 |
| D864..... | Proj, 155MM HE Basebleed M864..... | 46 |
| D501..... | Proj, 155MM APERS..... | 57 |
| D503..... | Proj, 155MM RAAM-I..... | 51 |
| D505..... | Proj, 155MM Illum..... | 62 |
| D509..... | Proj, 155MM RAAM-S..... | 80 |
| D528..... | Proj, 155 WP..... | 122 |
| D532..... | Chg Prop 155MM RB..... | 69 |
| D533..... | Chg Prop 155MM WB..... | 80 |
| D540..... | Chg Prop 155MM GB..... | 92 |
| D541..... | Chg Prop 155MM..... | 55 |
| D544..... | Chg Prop 155MM..... | 75 |
| D563..... | Chg Prop 155MM HEDP..... | 149 |
| D579..... | Chg Prop 155MM HERA..... | 82 |
| HX06..... | Rocket, 83MM HEAA f/SMAW..... | 40 |
| HX05..... | Rocket, 83MM Dual Mode SMAW..... | 100 |
| HX07..... | Rocket, 83MM Pract..... | 136 |
| J143..... | Rocket Motor, 5 Inch..... | 65 |
| K143..... | Mine, AP M18A1..... | 35 |
| M913..... | Line Charge, C-4 M58A4..... | 52 |
| M914..... | Line Charge, Prac Trl Mtd M68A2..... | 37 |
| ML25..... | Chg Demo Linear HE..... | 73 |
| ML26..... | Chg Demo Linear Pract..... | 862 |
| N290..... | Fuze, Electric Time M767..... | 48 |
| N289..... | Fuze, Electric Time M762..... | 14 |
| N340..... | Fuze, PD..... | 65 |
| N464..... | Fuze, Pract..... | 104 |
| N253..... | Primer, Percussion..... | 112 |

STUDIES AND ANALYSES

Mr. VISCLOSKY. In terms of studies and analyses, and again for the sake of my information, I have to ask for some definitions. The budget this year goes from about \$909,000 in fiscal year 1993 to \$6.7 million in fiscal year 1994 for studies and analyses. What does that figure include, General?

General BRABHAM. The greater part of the studies and analysis increase is associated with the cost, operational, and effectiveness analyses required by the DOD 5000 series of acquisition documentation recently signed and implemented. At each milestone in the ac-

quisition process, we must now conduct for all categories of acquisition, cost, operational, and effectiveness analyses. These are funded through the studies and analyses line, and that is the primary driver of this increase.

Mr. VISCLOSKY. So cost estimates in procurement accounts are driving this figure?

General BRABHAM. Tradeoff analyses comparing various alternatives before proceeding into the next acquisition step. That is the majority of the increase.

Mr. VISCLOSKY. Do you know what the costs of these types of studies and analyses might be beyond the next fiscal year? We are talking about a significant increase in magnitude of dollars.

General BRABHAM. I would project a leveling of that or a potential decrease. The implementation of the directive is a new requirement. To catch up on the backlog created, requires a lot of funding. I would anticipate that once we are caught up, the cost, operational, and effectiveness analysis monetary requirement would decrease.

Mr. VISCLOSKY. So it is a backlog in procurement possibilities on the horizon now?

General BRABHAM. It is catching up on all the ongoing requirements at once instead of the long-term steady state of the normal acquisition process.

Mr. VISCLOSKY. With procurement dollars going down, studies in terms of cost analysis going up, I understand——

General BRABHAM. I believe it will go down, sir. I really do.

Mr. VISCLOSKY. Thank you, General. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Darden?

V-22 AIRCRAFT

Mr. DARDEN. Thank you very much, Mr. Chairman. I wanted to check with you and be sure, I understand that everyone is on board for the V-22 and that is settled.

Is everybody pulling the same direction and singing out of the same hymn book?

General BRABHAM. I only speak for Marines and the Marines fully support the V-22.

Mr. DARDEN. How much is your request this year?

General BRABHAM. I would have to do that for the record, Mr. Darden. I do not handle the aviation account.

Mr. DARDEN. Thank you, Mr. Chairman.

[The information follows:

The FY 1994 budget request for the V-22 is \$77.6 million.

Mr. MURTHA. Any other questions?

Mr. McDADE. No questions, Mr. Chairman. Thank you.

Mr. MURTHA. Mr. Visclosky.

MARINE CORPS FORCE STRUCTURE AND READINESS

Mr. VISCLOSKY. What is your biggest problem looking ahead in the next 12 to 18 months in the Marine Corps?

General BRABHAM. Maintaining our manpower structure at a level that would allow us to carry out our commitments with an acceptable impact upon our personnel.

We have to keep our manpower levels where we can adequately train and pre-deployment train Marines before we pump them out and put them in harm's way. That requires as an end strength of 177,000, and that is our biggest problem.

Mr. VISCLOSKY. Did I understand correctly that half of the Marines are deployed at one time?

General BRABHAM. In the operating forces, a good portion of our total forces—a Marine on average is deployed away from home half of his time during a tour, which could be four years.

Mr. VISCLOSKY. They are deployed half of the time?

General BRABHAM. On the average, some more, some a little less. The smaller, higher technical specialities where we have smaller numbers may approach 60 percent. The helicopter mechanics and those types of folks are in high demand.

Mr. VISCLOSKY. Has that been fairly constant over the last 15 years or has that deployment time expanded on you?

General BRABHAM. It has expanded over the last couple of years, but it is fairly constant in history. The Marines expect to serve their Nation in that capacity. However, there are limits.

A good portion of the force is married today, and we have to take care of those families and give our folks time at home.

Mr. VISCLOSKY. I am in awe at the length of time military personnel are away from their families. What improved the most in the Marine Corps last year, all things being relative?

General BRABHAM. I am always amazed at the quality of the young American who walks into our boot camp and comes out as a U.S. Marine.

I stand in awe of a young American who walks out of Parris Island wearing a Marine Corps uniform.

Mr. MURTHA. You have to always look past the people who are testifying because they are going to say it is good no matter what is happening.

I remember 15 or 20 years ago I went down to Parris Island and 13 people said they wouldn't fight. General Wilson said they didn't know what they were talking about. We found out some were selling drugs and so forth. We got rid of 10,000 and started to revamp the Marine Corps.

We can only do so much. I understand if we go down to a force structure of 159,000, the deployments might average 63 percent of the time if the tempo of operation stays the same. Some will be deployed 70 percent of the time.

General BRABHAM. That is correct.

Mr. MURTHA. We had category four's, which is the lower educational background, who couldn't understand the sophisticated weapons. AWOL rates were high; we had an entirely different quality of force then. We have built this quality force and we are worried about losing it if we do not reduce the tempo of operations or else sustain an adequate funding level, so they are not deployed all the time.

Mr. VISCLOSKY. Have the problems families face evolved or changed or are they about the same as they have always been?

General BRABHAM. Over time, there are more families. When I was a platoon commander in the early sixties, myself and my pla-

toon sergeant were the only married men. A higher proportion of our population today are married than they were in those days.

Mr. MURTHA. That is why pay is such a concern because those folks are struggling. A lot of them are on food stamps. They are away from home, young kids, 17, 18, 19 years old, married husbands away and the wife struggling, barely making it.

General Kelly said a few years ago he moved 35 times in 43 years. I know we are trying to slow down those kinds of moves, but it shows you the kinds of frustration and instability that the military person has to go through when they are in the service.

Mr. Skeen?

Mr. SKEEN. Thank you, Mr. Chairman.

I only have one question that worries me, General. The Marine Corps is the epitomy of readiness. How much flexibility do you have in your funding to maintain the level of readiness to take care of any foreseeable incidents?

General BRABHAM. Readiness and the funding available are significant issues for the Corps, probably more so than any other Service. Of every dollar the Commandant receives in obligational authority, approximately 75 cents of that pays, houses, or directly takes care of a Marine.

So our structure costs are very high relative to the total dollar. Very little is left for operation and maintenance and modernization within a dollar.

As cuts come, with the given end strength to meet our commitments, the only place they can be absorbed is in that 25 cents. It rapidly hits modernization and goes directly into operations and maintenance, which includes our training dollars. So we are very sensitive to budgetary decreases and readiness because of our high manpower costs.

We are a manpower force. I started by saying our weapon system is a Marine, and that is how we are oriented.

Mr. SKEEN. If you take anything away from your O&M budget, you are losing readiness down the line.

General BRABHAM. Yes, sir.

Mr. SKEEN. You have to take care of your personnel first. I have been concerned about how much flexibility you have in the budget to overcome these gaps or does it just make it very difficult to manage?

General BRABHAM. Very difficult. We immediately get into flesh and muscle because of the way we are structured. We are a manpower-intensive force, not a weapon system intensive force.

Mr. SKEEN. I understand. Thank you very much for your responses. Thank you, Mr. Chairman.

Mr. MURTHA. Thank you, General. There will be additional questions for the record.

The Committee is adjourned until 1:30 p.m. this afternoon.

[CLERK'S NOTE.—Questions submitted by Mr. Dicks and the answers thereto follow:]

ARTILLERY PROJECTILES

Question. The Marines have a significant number of M864 155mm artillery projectiles that are intended to be used at long

ranges (approximately 30km). However, the Marines lack a corresponding number of M203A1 propellant charges which are required to propel the M864 projectile to the design range of 30km. What is the Marine Corps doing to obtain the required number of M203A1 prop charges to support the Corps inventory of the M864 artillery projectiles?

Answer. The Marine Corps will attempt to program sufficient funds in the future to ensure that artillery charges are procured to meet requirements.

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks. Questions submitted by Mr. Young and the answers thereto follow:]

MARINE CORPS OPERATIONAL TEMPO

Question. General Brabham, I enjoyed reading your statement and would like to pursue a few general questions it prompted as I read it. There is an awful lot of talk this year about peace dividend, but as I read your statement, it sounds like the Marines are busier than ever. Could you talk a little bit about your current levels of Op Tempo and if you have been as busy as it appears. Have the decreases in force levels caused you to deploy your Marines more frequently than desired? Is this a serious concern as it relates to quality of life and family separation?

Answer. The Marine Corps has not decreased its Op Tempo. The peace dividend, the end of the Cold War and the reduction of US troops in Europe, had no impact upon the Marine Corps in terms of reduced operational commitments. Our commitments to responding to regional conflicts have increased in the aftermath of the end of the Cold War and the weakening of the former Soviet Union. The expected decreases in force levels along with an increase in regional conflicts, has caused the Marine Corps to increase its Op Tempo. Longer and/or more frequent separations will strain the family lives of our Marines.

Question. How about your Op Tempo and the decrease you've experienced in O&M funding? Has this impacted your readiness goals or caused hollow force concerns?

Answer. No, we are ready now. The fiscal year 1994 O&M funding level is adequate to perform our mission in fiscal year 1994. However, because Op Tempo remains high, we are experiencing some degradation in material readiness. While our current equipment readiness rating of 89 percent is adequate, this is the first time it has fallen below 90 percent in the last decade.

Currently, our Op Tempo is approximately 47 percent, that is, our people in the Fleet Marine Force are away from their families 47 percent of the time. If we draw down below 177,000, they will be away more than 50 percent of the time. This level of Op Tempo would have a deleterious effect on morale and retention.

ADVANCED AMPHIBIOUS ASSAULT

Question. Let me switch to hardware. I get the impression the AAV is pretty important to you. Could you talk a little bit about why its so important and how its doing in development?

Answer. The AAV is important to the Marine Corps because it will allow forward deployed expeditionary forces to conduct oper-

ational maneuver from the sea with a level of speed and maneuverability that will offset an enemy's localized numerical advantage and bypass the strongest points of his defense. Our ability to build up forces ashore rapidly at the time and place of our choosing and move inland in one continuous motion is a critical factor in the success of any amphibious operation. The AAAV provides the Marine Corps the capability to do that. Its inherent water speed, armor protection, firepower and cross country mobility will provide embarked Marine infantry with a level of survivability and maneuver that is essential for 21st century combat operations.

The AAA program is currently in the Concept Exploration/Definition phase of the acquisition cycle. FMC and General Dynamic Land Systems' (GDLS) AAA Conceptual Design studies are complete. Independent government technical risk evaluations of these designs, and independent engine candidate studies have been performed. The Propulsion System Demonstrator, a government amphibious vehicle technology demonstrator (not a prototype) has demonstrated water speeds in excess of 30 miles per hour. FMC and GDLS near full scale AAA test rigs have also demonstrated over 30 miles per hour in the water. Each contractor's AAA design is being updated and initial risk reducing experiments will continue through June 1993. Current plans are for the completion of the program documentation and initiation of the final Concept Exploration Phase technical risk reduction project. This risk reduction project is the construction and testing of a full scale Automotive Test Rig. The six month review cycle will begin this summer to support a Defense Acquisition Board Milestone I review in the second quarter of FY 1994. Following successful completion of this review, a solicitation will be issued for the Demonstration and Validation phase. Contract award is planned for the beginning of FY 1995.

Question. Could you also share how its speed and range capabilities will fit into the picture with other items we have fielded or are fielding for the Marines, like the LCAC and the V-22?

Answer. The physical act of moving a Brigade-sized force from ships 20 to 25 miles at sea onto a hostile shore requires the execution and coordination of three separate launch operations. The landing craft air cushion (LCAC) carrying tanks, artillery and prime movers plus obstacle breaching combat engineer equipment advances toward a hostile shore at speeds of 40 to 50 knots. The V-22 assault aircraft can commence faint, raid and deception operations influencing a wide area along the coastline, as well as move troops ashore vertically. The current armored amphibian fighting vehicle representing the third launch operation, moves our mechanized infantry assault forces ashore at only 8 knots.

The current armored amphibian fighting vehicle speed is the critical limited factor which ties the task force commanders hands. This tips his hand to the enemy too early and places too many lives in harms way for too long. The AAA's high water speed (greater than 20 knots) and range (greater than 20 nautical miles in an hour) will eliminate this critical limiting factor and compliment the LCAC and V-22 assault aircraft.

The AAA is our primary means of accomplishing surface power projection and, if necessary, forcible entry against any level of de-

fended coastline. It will provide the principle means of land mobility and direct fire support to Marine infantry during operations ashore to include a nuclear, biological, and chemical environment. Additionally, the system will clear air cushion landing areas for assault follow-on LCAC landings, clear air landing areas for assault link-up with V-22 deployed forces. It will significantly improve the amphibious lift, tactical mobility of Marine forces, contribute to the survivability of the amphibious task force and permit a significantly faster rate of combat power built up ashore.

AMMUNITION BUDGET REQUEST

Question. Your ammunition request in FY 1994 represents a significant reduction. Are we cutting too deep here?

Answer. No. During the past two years, sustainability requirements were reduced from 60 Days of Ammunition (DOA) to 45 DOA. Because of reduced training and Prepositioned War Reserve (PWR) requirements, the force drawdown, and through the use of PWR excesses, the FY 1994 training requirements will be met. However, in the future, high use/high value items will experience training restrictions in order to conserve assets for war reserves.

9MM PISTOL

Question. One last question General, I have been briefed that the Army's interpretation of our language last year on the 9mm pistol has caused you to be unable to obligate your pistol procurement funds without having to accept what you consider to be an inferior quality pistol. Could you tell us about the concern and what we could do to help you solve this problem without undoing our objective of fielding a single 9mm for all the Services?

Answer. The Marine Corps supports the Congressional intent to field a single 9mm handgun for the Services. All Marine Corps funds to procure the required 84,000 M9 pistols have been obligated. Recent test results of the M9 pistols have been reassuring and the Marine Corps anticipates that additional testing will demonstrate the qualify necessary to satisfy our requirements.

The Navy has proposed a comprehensive plan to the Army for future standard handgun procurement. Initial responses from the Army have been favorable. Under the plan, future M9 pistols would include a steel frame and more durable parts, while at the same time maintain interchangeability with earlier models and use the same ammunition. This plan would significantly allay Marine Corps concerns on pistol quality and if approved, the Marine Corps would purchase the improved standard M9 handguns for all future replacement buys.

[CLERK'S NOTE.—End of questions submitted by Mr. Young. Questions submitted for the record and the answers thereto follow:]

"GREEN DOLLARS" AND "BLUE DOLLARS"

Question. This hearing considers specifically the \$483.5 million in the Procurement, Marine Corps budget and the \$259.5 million identified with an "M" for specific Marine Corps program elements in the R&D Navy budget. These programs are commonly referred to as "green" dollars. However, the Marine Corps directly benefits

from other Navy Procurement and R&D funding, so-called "blue" dollars. How many Marine Corps "blue dollars" are included in the FY 1994 budget and what are the major programs?

Answer. The FY 1994 budget request includes \$259.5 million in the Research, Development, Test and Evaluation, Navy account in direct support of Marine Corps programs. The FY 1994 Navy budget request also contains approximately \$3.0 billion to support airplanes flown by Marine pilots within the Naval Aviation Mission. These funds support a mix of Navy and Marine Corps requirements within that Naval mission. Major programs include the EA-6B (Prowler), AV-8B (Harrier), F/A-18 (Hornet), MH/CH-53E, and AH-1W (Sea Cobra). These dollars do not include amphibious ships which are in support of a Naval Warfare Area mission.

PROCUREMENT FUNDING LEVELS

Question. At \$483.5 million, the Marine Corps procurement budget is the lowest it has been since 1980. It is the smallest of all the procurement appropriations in the budget. Is this funding level based on reduced requirements or budget restraints?

Answer. The funding level has been reduced due to budget restraints.

Question. Is the budgeted funding level one that the Marine Corps can sustain in the years ahead? If not, what do you consider to be a sustainable funding level?

Answer. The Department is currently conducting a "Bottom-up" review. The minimum sustainable procurement funding levels will be determined after completion of that review.

Question. What Marine Corps procurement funding levels are currently projected for future years?

Answer. Outyear funding levels will be determined after completion of the "Bottom-up" review.

Question. What specific items of equipment would the Marine Corps be buying in FY 1994 if more funding was available?

Answer. If more funding was available, the Marine Corps would buy the following equipment: Shelterized Have Quick Radio Sets, Night Vision Goggles, Light Armored Vehicle Sights, Joint Tactical Information Distribution Systems, Single Channel Ground Air Radio Systems, Pedestal Mounted Stingers, Artillery Enhancements such as the Meteorological Measuring Sets, Muzzle Velocity Systems and Modifications to the M198 Howitzers, AN/UYQ-83/85 Tactical Computers and the Indoor Simulated Marksmanship Trainer.

ADVANCED AMPHIBIOUS ASSAULT (AAA)

Question. The budget includes \$20.554 million for continued development of the Advanced Amphibious Assault (AAA) Vehicle, a replacement of the LVT7A1 tracked amphibious vehicle. Last year, this program was significantly restructured as a result of cost and requirement considerations. What is the current status of this program?

Answer. The AAA program is currently in the Concept Exploration/Definition phase of the acquisition cycle. FMC and General Dynamic Land Systems' (GDLS) AAA conceptual design studies are

complete. Independent government technical risk evaluations of these designs, and independent engine candidate studies have been performed. The Propulsion System Demonstrator, a government amphibious vehicle technology demonstrator (not a prototype), has demonstrated water speeds in excess of 30 miles per hour (MPH). FMC and GDLS near full scale AAA test rigs have also demonstrated over 30 mph in the water. Each contractor's AAA design is being updated, and initial risk reducing experiments will continue through June 1993. Current plans are for the completion of program documentation and initiation of the final Concept Exploration Phase technical risk reduction project. This risk reduction project is the construction and testing of a full scale Automotive Test Rig. The six (6) month Defense Acquisition Board (DAB) review cycle will begin this summer to support a Defense Acquisition Board Milestone I review in the second quarter of FY 1994. Following successful completion of this review, a solicitation will be issued for the Demonstration and Validation (D&V) phase. Contract award is planned for the beginning of FY 1995.

Question. In the early 1970's the Marine Corps had a LVT7A1 replacement program called Landing Vehicle Assault (LVA). It was canceled in 1979 because it was found to be too costly and too ambitious and replaced by the Landing Vehicle Tracked-Experimental (LVTX) which eventually became AAA. As of fiscal year 1984, the Initial Operational Capability for LVTX was 1994. AAA is currently in "concept development" and we are still years away from having a vehicle to replace the LVT7A1. General, can you see any light at the end of the tunnel?

Answer. Previous assault amphibian programs did not result in the development and production of replacement vehicles due to the technical challenges associated with meeting the combined high water speed, land mobility, armor and fire power requirements. These technical challenges are only now considered achievable. The current Advanced Amphibious Assault (AAA) program began in 1988 with the preparation of a Mission Area Analysis (MAA). The technology required for a high speed amphibian has matured since the LVA and LVTX programs. The prime contractors have conducted extensive research and risk-reducing experiments for their respective AAV designs. The Navy's Office of Advanced Technology has stated that the program's technologies have matured to the point where the program is ready for the development of a full-scale prototype.

Question. What seems to be the problem in fielding a system to replace the LVT7A1? How can we be confident that your current program will be any more successful than the string of failures of the past?

Answer. Operational requirements significantly exceed the capabilities of the AAV7A1 and until recently were unobtainable with existing technology. These technologies are now available as a result of the Marine Corps' technology program and the efforts of both Concept Exploration contractors by their technical risk reduction projects. We would invite you to witness the results of our progress at your convenience. These demonstrations will convince you, as they have us, that the AAA program is now achievable.

Question. How much has been spent since the beginning of the LVA program to develop a LVT7A1 successor?

Answer. Costs for the LVA and LVTX programs are not readily accessible, but on-hand data indicates that approximately \$70 million was spent on LVA and \$63 million on LVTX between 1972 and 1984. The AAA program has obligated approximately \$46 million in research and development through FY 1992.

Question. How much more will be spent before AAA is fielded?

Answer. Cost estimates for the AAA are currently under review. However, our preliminary estimate of RDT&E cost is approximately \$650 million.

Question. What are the current testing and program milestones for this program?

Answer. The AAA program's milestones are currently as follows:

Milestone I—2nd Qtr FY 1994.

Milestone II—4th Qtr FY 1999.

Milestone III—2nd Qtr FY 2006.

The AAA program's test schedules are as follows:

Development Test-I (DT-I)—2nd Qtr FY 1998—4th Qtr FY 1998.

Early Operational Assessment—1st Qtr FY 1999—2nd Qtr FY 1999.

DT-II—2nd Qtr FY 2002—4th Qtr FY 2004.

Operational Test-II—1st Qtr FY 2004—3rd Qtr FY 2004.

Live Fire Test—1st Qtr FY 2005—2nd Qtr FY 2005.

Initial Operational Test and Evaluation (IOT&E)—4th Qtr FY 2005—1st Qtr FY 2006.

Follow On Test and Evaluation (FOT&E)—3rd Qtr FY 2008—2nd Qtr FY 2009.

Question. What specifically is to be accomplished with the funds requested in your budget?

Answer. During FY 1994 the program will complete construction and testing of an Automotive Test Rig for land agility from each Concept Design contractor and testing of candidate high water speed engines. In addition, the preparation for the Defense Acquisition Board Milestone I review and solicitation of proposals for the Demonstration and Validation phase will occur.

Question. In FY 1985, the Navy testified that, "Service of the LVT7A1 family of vehicles beyond 1997 is questionable because by that time 70% of the fleet will have been in service for at least 25 years." Given the milestones of the current AAA program, how long do you now expect the LVT7A1 to be in service?

Answer. With the improved suspension, up-powered engine, and a combination of hull reinforcement and some replacement remanufacture, sufficiently serviceable AAV7A1s will be available to support the Fleet Marine Forces until the AAA program meets its Full Operational Capability currently estimated in FY 2007.

STRATIFIED CHARGE ROTARY ENGINE

Question. Last year, \$17 million was provided for continued research on the stratified charge rotary engine. This year, the funding for this program is included on the AAA line. Why was this change made?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. How much is included in the 1994 budget for the SCRE program compared to the \$15.6 million that you anticipated last year?

Answer. No funds are contained in the FY 1994 budget request for the Stratified Charge Rotary Engine (SCRE)

Question. What is the current status of the program?

Answer. The SCRE program has completed NATO testing of the two rotor configuration. NATO testing of the three rotor is underway. Durability testing, using the two rotor engine configuration, will begin in the last quarter of FY 1993. No new work is planned beyond the FY 1993 funded program.

Question. Is the SCRE still a "firm" requirement (as you stated last year) for both the Block III LVT7A1 program and the Advanced Amphibious Assault (AAA)?

Answer. The Stratified Charge Rotary Engine (SCRE) is no longer considered a candidate for the Block III LVT7A1 program or the Advanced Amphibious Assault (AAA). All efforts for the SCRE will terminate with the completion of the FY 1993 funded program. The decision to terminate the program was based on the fact that the only possible application for the SCRE was the AAA program, which is in the concept exploration and definition phase. The AAA requirement is for a certain size engine of a certain horsepower, not specifically for a rotary engine. The SCRE lacks the technological maturity required for the AAA. Additionally, the Army's need for the SCRE has diminished, and there is no DOD wide application of the technology.

Question. What are the alternatives to the SCRE and what are their relative advantages and disadvantages compared to the SCRE?

Answer. Alternative power sources to the SCRE include single and double diesel engine configurations and diesel/gas turbine combinations. The diesels are the result of decades of development and have a large military and commercial base worldwide. Meeting the specific constraints of horsepower and size does represent a concern, but is considered an achievable technical challenge. The gas turbine is desirable because it offers a horsepower-to-volume ratio that is attractive for the Advanced Amphibious Assault (AAA) application. However, there are significant technical concerns about reliability and performance in a salt sea environment. On the other hand, the SCRE lacks maturity and would have a relatively small business-base. While it may offer improved efficiency, reliability with lower noise, lower thermal signatures and a modular design, these attributes have not been demonstrated at the horsepower levels required by the AAA.

Question. What is the overall plan and strategy for providing propulsion for future amphibious assault vehicles? Is this plan fully funded?

Answer. The overall Advanced Amphibious Assault (AAA) engine strategy is for the Government to invest in the most promising engine concepts during FY 1993 and FY 1994 and then assign the engine maturation to the winner of the Demonstration and

Validation contract to be awarded in FY 1995. The plan is fully funded.

Question. What are the current milestones and future year funding profile for this program?

Answer. The current plans for the SCRE program are to complete NATO testing on the three rotor engine and the durability testing on the two rotor engine with all effort finishing in September 1994. This effort will conclude the SCRE program. There are no future year funds for this program.

SHORT RANGE ANTITANK WEAPON (SRAW)

Question. The research and development budget includes \$21.1 million for continued development and testing of the Short Range Antitank Weapon (SRAW). What is the status of this program?

Answer. On March 11, 1993, the PREDATOR (Short Range Antitank Weapon) Program successfully completed its Flight Test Program and is currently in the review process for a projected Milestone II approval in September 1993. The FY 1994 budget request will fund the Program's first year of Engineering and Manufacturing Development (EMD).

Question. The Marine Corps already has the LAW, the SMAW (with two warheads), the AT-4, the Dragon, and the TOW. In addition, the AAWS-M Javelin, the MIPM, the Bunker Defeat Weapon, TACAWS and JAWS are also in development. Why is yet another weapon development program necessary?

Answer. The Marine Corps requirements in antitank systems fall within the HAW/MAW/LAW (Heavy/Medium/Light Antitank Weapon) doctrine. The concept is one in which the more sophisticated, heavier, longer range systems engage the energy at the outermost reaches, while the more proliferable and portable short range systems are the last line of defense. PREDATOR (SRAW) fills the light/proliferable antitank requirement and will replace the AT-4 and eventually the SMAW. The Javelin will replace the Dragon in the medium category while TOW will continue to be the only heavy, long range, main battle tank killer.

The wide range of existing threat scenarios requires that the PREDATOR (LAW), Javelin (MAW), and TOW (HAW) systems be viewed as complimentary rather than competitive, with each being allocated against the target spectrum based on range, transportability, and proliferability. The intent is to reduce the multiplicity of infantry anti-tank weapons in the inventory to only these three systems. In answer to the specific systems mentioned in this question, the following is provided:

SMAW: The SMAW is the Marine Corps' currently fielded "Bunker Buster" system and satisfies that requirement.

AT-4/LAAW: Since before 1982, with the advent of reactive armor, the AT-4 and LAAW have been unable to meet the requirement to defeat main battle tanks. The AT-4 and LAAW are being phased out.

DRAGON: The limitations of the system render it inadequate to satisfy the MAW requirements, of the two-kilometer range and the ability to fire from enclosed spaces. The Dragon is no longer being procured and current inventories will be depleted at about the time

the Javelin begins fielding. The medium system of choice is the Javelin.

MPIM: The Marine Corps has never participated in the US Army Multi-Purpose Individual Munitions (MPIM) concept. MPIM is a bunker buster that was returned to the technology base when the concept was not proven. The Marine Corps already has a bunker buster.

BDM: The Bunker Defeating Munitions (BDM) is an Army program to provide an interim bunker defeat capability until MPIM is fielded. The SMAW currently provides this capability for the Marine Corps.

TACAWS: The Tactical Army Combined Arms Weapon System (TACAWS) is an Army developmental program for an advanced weapon to replace TOW as a heavy antitank weapon system. The Marine Corps is monitoring this as a possible future replacement for TOW well into the 21st century.

JAWS: The Joint Advanced Weapon System (JAWS) is a conceptual requirement in both the Marine Corps and the Army for a new heavy antitank system. One of the candidates for this requirement is TACAWS.

Question. What is the expected role of SRAW, compared to these other weapons, in the way the Marine Corps plans to fight in the future?

Answer. A weapon such as PREDATOR (SRAW) will always be significant to the battlefield because of the expeditionary nature of the Marine Corps. First in combat and traveling light, the Marine Corps requires immediate anti-armor capability in a light, self-contained round of ammunition that is highly accurate and lethal.

The PREDATOR (SRAW) will provide that capability. It will be used by any Marine placed in an anti-armor defensive situation. It will also be useful in military operations in urban terrain, as it may be safely fired from enclosed spaces.

Question. What is the role of the Army in the SRAW program? How many SRAWs will the Army be buying?

Answer. The Army presently has no role in the PREDATOR (SRAW) Program. However, the Army does monitor our progress by having representation at each of our quarterly In Progress Reviews (IPRs).

Question. What are the current testing milestones for this program and what are the results of test to date?

Answer. A Critical Design Review (CDR) is scheduled for December 1994 and the Development and Operational Testing II is scheduled in FY 1999. To date, the Demonstration/Validation (Dem/Val) Phase of the Program included 44 missiles flights which concluded in March 1993 with a flight test success rate of 93%.

Question. Last year, you testified that a Milestone II decision was scheduled for the first quarter of fiscal year 1993 and a Milestone III decision would occur in the first quarter of fiscal year 1996. These dates appear to have slipped by about one year. Why?

Answer. Program documentation (e.g. Cost and Operational Effectiveness Analysis (COEA)) and the impact of the implementation of the DoD 5000 acquisition directives (e.g. Operational Requirements Document (ORD)) has caused about a nine month slip.

Question. Why has the Initial Operating Capability (IOC) date remained unchanged at second quarter fiscal year 1998 when other milestones have slipped?

Answer. The IOC date of second quarter FY 1998 is based on a three year Engineering and Manufacturing Development (EMD) phase. Funding constraints will likely result in a change in the IOC date.

Question. Last year, you testified that the total development cost of this weapon was \$126 million. A total of about \$54 million has been appropriated to date. What is your current estimate of the total development cost? Provide a funding profile for the record.

Answer. The total development cost is expected to be \$134.05 million dollars.

The funding profile is provided below:

[In millions of dollars]

| | Prior yrs | FY 1993 | FY 1994 | To complete | Total |
|------------|-----------|---------|---------|-------------|--------|
| USMC..... | 9.0 | 7.6 | 21.0 | 59.0 | 96.60 |
| BTI..... | 37.45 | | | | 37.45 |
| Total..... | 46.45 | 7.6 | 21.0 | 59.0 | 134.05 |

Question. Last year you said that you would be buying about 50,000 SRAWs at a unit cost of about \$5 thousand. What are your current estimates?

Answer. The requirements given last year remain the same.

Question. What is the total estimated procurement cost for SRAW?

Answer. Based on the Government's December 1992 Life Cycle Cost Estimate, the total estimated procurement cost is \$301 million (FY 1993 constant budget dollars).

Question. What product improvements are being considered for PREDATOR (SRAW), where are they funded, and at what cost?

Answer. Presently there are no product improvements being considered for PREDATOR (SRAW) main battle tank killer.

MULTIPLE LAUNCH ROCKET SYSTEM

Question. Last year, Congress appropriated \$62.5 million for the procurement of 24 MLRS launchers but specified that the funds not be obligated until completion of the JCS "Roles and Missions" study. The Roles and Missions study made no conclusions concerning MLRS for the Marine Corps but suggested further study. What efforts are currently underway to resolve the issue of MLRS for the Marine Corps?

Answer. A Secretary of Defense memorandum of 15 April 1993 directed a study to explore alternatives and develop detailed proposals for implementation.

Question. Who is conducting the study? When will it be completed?

Answer. The Chairman, Joint Chiefs of Staff and the Secretary of the Navy were tasked with conducting the study. The anticipated completion date is July 1994.

Question. Who will make the final decision on this issue and when will it be made?

Answer. The Secretary of the Navy and the Chairman, Joint Chiefs of Staff will report their recommendations based on the Study to the Secretary of Defense. The Secretary of Defense or his designated representative will make the final decision. No specific decision date is known at this time.

Question. If the decision is made to equip the Marine Corps with MLRS, how many launchers will be required, to what units will they be assigned, and how will they be deployed?

Answer. The Marine Corps has a requirement for 42 launchers. Each active Marine Division will be supported by one (9 launchers) battery. Equipment associated with one MLRS battery will be added to maritime-prepositioned assets for strategic mobility enhancement. The remaining six launchers will be utilized to support maintenance and as war reserve stock.

The MLRS will normally deploy in support of a Marine Expeditionary Force or Marine Expeditionary Brigade level Marine Air Ground Task Force and be positioned and controlled by the maneuver force's senior artillery commander. They will be deployed as a battery or as an individual three launcher platoon. Each platoon will be capable of independent deployment and employment when the tactical situation dictates. The MLRS will permit the use of a single launcher or platoon to attack targets that would otherwise require the massing of cannon artillery units.

Question. What will be the additional cost of such equipment?

Answer. The Marine Corps will purchase 18 launchers to include all the support equipment necessary to field two batteries with FY 1993 funds of \$66.8 million. The remaining launchers, spare parts, support equipment, and 45 days of tactical rockets required to reach our Acquisition Objective will cost \$246.8 million (FY 1993 constant dollars).

LIGHT ARMORED VEHICLE-AIR DEFENSE

Question. The budget includes \$65.5 million for the initial procurement of 21 Light Armored Vehicles-Air Defense (LAV-AD). What is the status of this program?

Answer. The LAV-AD program is on schedule with two prototypes undergoing Developmental Testing II to be completed in mid-June 1993. Operational testing is scheduled to be completed by 30 September 1993.

Question. Last year, you identified a requirement for 125 LAV-AD's and showed funding for 98 in the five year budget. Why do you currently plan to procure only 21 units?

Answer. The Marine Corps has reevaluated its requirement and determined that 21 units will provide a sufficient contingency capability for high air threat areas.

Question. Of what use to the Marine Corps is a system where only 21 are in the inventory? How will these units be deployed and used compared to the previous plan?

Answer. The LAV-AD will be used as a contingency capability in high air threat areas.

The LAV-ADs will be deployed at Camp Pendleton, California, in the 1st Light Armored Reconnaissance (LAR) Battalion.

The previous plan envisioned four Light Armored Infantry Battalions of 24 each, with the remainder for Pre-Positioned War Reserves, Operational Readiness Float and training (29).

Question. Last year, you estimated that the first 21 systems would cost \$63 million. With the \$10 million added by Congress for this program in fiscal year 1993, the cost of 21 systems has increased to \$75.5 million. Why?

Answer. The \$63 million amount did not represent the total cost to produce 21 complete LAV-AD systems. The \$63 million only represented the manufacturer's fixed price option to produce 21 systems. It did not include government related costs required for the total vehicle system, e.g., government furnished equipment, production engineering, and first article testing.

Question. What are the testing milestones for the LAV-AD?

Answer. Development Testing II will be completed in June 1993 and Operational Testing II will be completed in September 1993.

Question. What are the results of the tests to date?

Answer. The systems have undergone a major portion of the scheduled Developmental Testing IIA. All performance tests Electro-Magnetic Interference/Electro-Magnetic Compatibility (EMI/EMC), Hazards of Electro-Magnetic Radiation to Ordnance (HERO), Automotive, Safety, and Weapons are complete. Data is still being analyzed, but preliminary results are positive.

Question. What is the procurement strategy for the LAV-AD? What sort of contract(s) will be used?

Answer. The prime contract was awarded as a Research and Development cost plus fixed fee in June 1992 with a firm fixed price production option for 21 systems. The production option will be exercised in December 1993 upon completion of the research and development efforts.

Question. The current procurement funding profile for LAV shows \$15.1 million in FY 1996, \$33.7 million in FY 1997, \$226.2 million in FY 1998 and \$299.8 million in FY 1999. What is the intended use of these funds?

Answer. During 1992, the Marine Corps conducted an in-depth analysis, referred to as "Force 2001," of the implications of reduced force structure and equipment requirements to maintain a mobile, survivable force in the next decade. "Force 2001" determined that the combat proven family of Light Armored Vehicles was essential to the mobility, survivability and flexibility required to accomplish the mission of the Marine Corps. The funds programmed in fiscal years 1996-1999 will procure 416 Light Armored Vehicle variants required by the analysis. There are no LAV-AD systems included in the 416 vehicles to be procured.

AMMUNITION PROCUREMENT

Question. The Marine Corps ammunition procurement has traditionally been about \$300-\$400 million per year. What is the impact of the proposed \$85 million funding level in fiscal year 1994?

Answer. The training of the Marines in basic combat skills is our primary goal. However, this reduction will have minimal effect on

our immediate training needs. The Marine Corps will use excesses in Pre-Positioned War Reserves to meet these requirements.

Question. Will training be adversely impacted by the ammunition funding level in fiscal year 1994?

Answer. No. the USMC will use prepositioned war reserve excesses to meet training requirements.

Question. What ammunition funding levels are projected for future years?

Answer. The Department of Defense is currently conducting a "Bottom-up" review. Outyear funding levels will be determined after completion of this review.

LOGISTICS VEHICLE SYSTEM

Question. The budget includes \$12.1 million for procurement of 81 Logistics Vehicle Systems (LVS) vehicles. This procurement is described as a "rebuy". What is the total quantity and cost of the rebuy?

Answer. The total quantity of the rebuy for FY 1994-1999 is 454 front power/rear body units for a total cost of \$74 million.

Question. How many of those procured are to replace LVS vehicles currently in the inventory?

Answer. Of the 81 units to be procured in FY 1994, 37 will replace lost or damaged units.

Question. Why are the requirements for this vehicle apparently increasing when the size of the force is getting smaller?

Answer. The Marine Corps quantity of these vehicles have never been adequate to optimally satisfy our heavy cargo lift requirements. The Marine Corps heavy lift requirement is several times greater than what can be hauled by the current quantity of LVS's. The effect of the Marine Corps down sizing will only reduce this capability shortfall not eliminate it. The Marine Corps greatly reduced manpower resources, and diminished operational tempo mandate that fewer people must do more. This situation has caused an increase reliance upon the LVS in order to compensate for the loss of operators.

Question. How can 81 vehicles be considered an economic, or even reasonable, procurement rate?

Answer. The Logistics Vehicle System (LVS) rebuy contract will be a sole source firm, fixed priced contract, with options. The current plan is to purchase a quantity of 81 units in FY 1994, and an additional quantity of 81 units in FY 1995 as an option. The probable contractor is a heavy truck specialty manufacturer with the capability of producing small quantities without excessive overhead costs. The manufacturer owns the technical data package and holds the patent for these particular LVS variants (MK48, MK14, MK15, MK16 and MK17). While greater quantities would result in increased savings, the unit cost estimates provided by this contractor have not been viewed as uneconomic.

AAV7A1 UPGRADES

Question. The procurement budget includes \$16.1 million for product improvements to the AAV7A1 amphibious assault vehicle,

formerly known as the LVT7A1. What is the overall Marine Corps strategy for product improvements to this vehicle?

Answer. Current planned improvements to the AAV7A1 center around improvements to the suspension and powerplant systems. These upgrades will address known operational deficiencies and reduce operation and support costs. Any changes beyond the suspension and powerplant system will reflect the decisions resulting from the Defense Acquisition Board Milestone I review of the Advanced Amphibious Assault.

Question. Last year, \$16.6 million was provided for this program. It now appears the \$4.1 million of funds appropriated for improved suspension have been reprogrammed to do "engine up-power" work. Please explain.

Answer. The AAV7A1 Product Improvement Program (PIP) is an integrated package of planned product improvements and modification kits that increase the vehicle's reliability, battlefield survivability, and combat capability. They will also decrease life cycle support costs.

This program was divided into four unique but related projects: improved transmission, improved suspension, engine up-power and modification kits. The engine and suspension are interrelated engineering changes to improve the ground mobility of the vehicle. However, the improved suspension was delayed due to competing Army demands upon the supply system during Operation Desert Storm. Additionally, it was necessary to verify operational tests on the suspension by completing a 10,000 miles/four month test. It was decided, therefore, to redirect some of the improved suspension funds to the engine up-power side of the ground mobility solution and use these funds to build the engines, mate them with the improved transmission and have them ready for installation in improved suspension equipped vehicles.

Question. What additional product improvements are currently in development, what funding is included in fiscal year 1994 and where is it found?

Answer. There are no additional product improvements currently in development for the AAV7A1 in fiscal year 1994. The Research and Development budget request includes \$1.1 million for testing the Improved Suspension System (I-SUSP) and the Engine Up-Power (EUP) modifications as an integrated part of all the Block II upgrades to the AAV7A1. The funding is included in Program Element #0603611M, Project Number B0020.

Question: Provide for the record the procurement funding profile for all AAV7A1 improvements.

Answer: The procurement funding profile is as follows:

[In thousands of dollars]

| | FY 1992 | FY 1993 | FY 1994 |
|---------------------------------|---------|---------|---------|
| Engine Up-Power | 1,207 | 4,936 | 2,890 |
| Improved Suspension | 0 | 6,890 | 9,740 |
| Improved Transmission | 8,497 | 0 | 0 |
| AAV7A1 Mod Kits (Various) | 2,564 | 4,784 | 2,509 |
| Total | 12,268 | 16,610 | 15,139 |

LANDMINE COUNTERMEASURES SYSTEM

Question: In your statement, you note that countermine efforts are one of three areas of concentration in your FY 1994 research and development budget. How much is in your budget for this purpose?

Answer: The total FY 1994 budget request for land countermine and shallow water efforts is \$18.8 million.

Question: How much is included for Shallow Water Mines and what programs are you currently pursuing?

Answer: The budget request for Shallow Water Mine efforts for FY 1994 is \$4.811 million. The Marine Corps is currently concentrating its research and development effort in the beach transition area from a depth of 4 feet to the Cleared Landing Zones (CLZ) located between 75-150 meters inland. The two programs currently being pursued are the Joint Amphibious Mine Countermeasures (JAMC) and the Coastal Battlefield Reconnaissance and Analysis (COBRA).

Question. What is the overall plan for Shallow Water Countermine research?

Answer. The Navy is responsible for the shallow water mine program as delineated in the Naval Mine Warfare Plan. The plan covers the three mission areas of Detection/Reconnaissance, clearing, and Navigation/Marking. Programs to address these mission areas are:

Swedish American Minesweep (SAM) II.

Obstacle Breaching.

Distributed Explosive Technology (DET).

Shallow Water Assault Breaching System (SABRE).

Breach Lane Navigation.

The U.S. Navy is responsible for clearance of mines and obstacles from the High Water Mark (HWM) seaward. Mine Warfare in support of amphibious operations is a complex operation with diverse operational environments. Mines must be detected, prepared for neutralization and neutralized in the deep water (over 200 feet), Shallow Water (SW) from 200'-40', and Very Shallow Water (VSW) from 40'-10' approaches to the beach without alerting the defender or in-stride with the assault. After the approaches are clear, the Surf Zone (SZ) 10'-0', beach and Cleared Landing Zones (CLZ) mine/obstacle barriers must be breached in-stride.

To address these challenges, the Navy and Marine Corps have developed a joint shallow water mine countermeasures (SWMCM) program that shares research and development activities. These activities are monitored by a Three-Star Steering Group and a SWMCM Committee.

The Marine Corps is currently concentrating its research and development effort in the beach transition area from a depth of four feet to the CLZ located between 75-150 meters inland. The Joint Amphibious Mine Countermeasures (JAMC) and the Coastal Battlefield Reconnaissance and Analysis (COBRA) programs support these efforts.

Question. How much is included for Landmine Countermeasures and what programs are you currently pursuing?

Answer. The FY 1994 budget request includes \$14.033 million for Landmine Countermeasures. The following programs are being pursued:

- Advanced Countermine Systems (ACS).
- Off-Route Smart Mine Clearance (ORSMC).
- AAV Full Width Mine Rake (FWMR).
- Anti-Personnel Obstacle Breaching System (APOBS).
- Magnetic Countermine System (MACS).

Question. What is the overall plan for Land Countermine efforts?

Answer. The Science and Technology Base Reliance Committee in the Office of the Secretary of Defense has designated the Army as the lead organization for Land Countermine efforts in Science and Technology. The Marine Corps and Army are working jointly to develop systems to defeat current and future mine threats. The Advanced Land Combat Science and Technology thrust area and the Army's Countermine Modernization Plan form the plan for these efforts.

Question. How does your Land Countermine program differ from programs of other DoD elements, such as the Army? How are these efforts coordinated?

Answer. The Marine Corps is jointly developing with the Army, the Advanced Countermine System (ACS), the Off-Route Smart Mine Clearance System, and the Anti-Personnel Obstacle Breaching System (APOBS). These efforts are primarily coordinated through joint Mission Need Statements and Operational Requirements Documents.

The Magnetic Countermine System (MACS) system is being developed to neutralize magnetic influence fuzed mines at a safe standoff distance in front of the host vehicle. We are currently working with the Army in a cooperative effort to evaluate several Non-Developmental Items, to include a Foreign Comparative Test item, to down select to one system and enter into a joint procurement strategy.

The Marine Corps is also developing the AAV7A1 Full Width Mine Rake (FWMR) for use on the Advanced Amphibious Assault Vehicle (AAV7A1), a unique Marine Corps vehicle. The FWMR is being developed to proof a breached lane cleared by the MK154 Launcher, Mine Clearance 3 shot line charge deployed from an AAV7A1 from the high water mark inland during an amphibious assault.

TACTICAL WHEELED VEHICLE MODERNIZATION

Question. What is the long range plan of the Marine Corps to modernize its tactical wheeled vehicle fleet and how does this plan differ from the Army's plan?

Answer. The Marine Corps plans to modernize its tactical wheeled vehicle fleet by emphasizing a limited number of new system buys through joint service programs, planned product improvements, limited rebuys of fielded systems, and the Inspect, Repair Only as Needed (IROAN) program.

The Marine Corps will eliminate the Commercial Utility Cargo Vehicle (CUCV) trucks from its light vehicle fleet. The fleet will

consist of High Mobility Multi-Purpose Wheeled Vehicles (HMMWVs), two light vehicle trailers and some motorcycles.

The medium fleet will consist of the M809 and M939 series 5 ton trucks, some trailers and a small quantity of special use trucks (i.e. telephone-maintenance and maintenance van vehicles). A small quantity of 2½ ton fuel/water trucks will soon be retired. The Marine Corps is studying options to eventually replace the medium trucks beginning in FY 1999. A Cost and Operational Effectiveness Analysis (COEA) is currently underway to identify and review a number of alternatives for the Medium Tactical Vehicle Replacement (MTVR) Program.

The heavy fleet consist of the Logistics Vehicle Systems (LVS), bulk liquid tankers and heavy equipment transportation trailers. Some LVS are planned for procurement in FY 1993, FY 1994 and FY 1995 to fill deficiencies and to replace assets lost due to Operation Desert Shield/Storm and accidents.

The Army's modernization plan is similar to ours. The significant changes in service Total Obligation Authority (TOA) levels will affect both plans substantially. Some differences are that we do not plan to rebuy Commercial Utility Cargo Vehicles (CUCVs), and our MK-18 Logistics Vehicle Systems (LVS) trailer will fill the Palletized Load System (PLS) capability being procured by the Army.

Question. What current plans does the Marine Corps have to procure the Family of Medium Tactical Vehicles (FMTV)?

Answer. The Marine Corps is currently pursuing the Medium Tactical Vehicle Replacement (MTVR) Program which is in acquisition phase 0, concept exploration and definition. A milestone I is planned for the 1st quarter FY 1994.

A Cost and Operational Effectiveness Analysis (COEA) is underway to identify and review alternatives for a MTVR. The Family of Medium Tactical Vehicles will be considered during the analysis.

STUDIES AND ANALYSES

Question. The budget for studies and analyses goes from \$909 thousand in fiscal year 1993 to \$6.734 million in fiscal year 1994. Why?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. How many studies will be funded in FY 1994 compared to previous years?

Answer. We estimate there will be a total of 76 study requirements for FY 1994. These 76 studies are as follows:

| | |
|--|----|
| FY 1993 studies continued..... | 5 |
| New planned general studies..... | 25 |
| New emerging studies including "Quick Response" requirements..... | 12 |
| Mission Area Analyses (MAA) for two (2) new and seven (7) updates..... | 9 |
| Pre-Milestone I Cost Operational Effectiveness Analyses (COEA)..... | 25 |
| Total | 76 |

In comparison to previous years this is a two-fold increase. The number of studies initiated during the period FY 1991 through FY 1993 is as follows:

FY 1991—19 Studies initiated. 10 FY 1992 studies continued.

FY 1992—24 Studies initiated. 11 FY 1991 studies continued.

FY 1993—25 New studies (MAAs & COEAs) initiated. 9 FY 1992 studies continued. 13 Programmed starts for 3rd & 4th Qtrs (4 MAAs and 9 COEAs).

Question. What are the expected costs of studies and analyses in fiscal years beyond 1994?

Answer. The Marine Corps Studies System projected funding requirement for the period FY 1995 through FY 1999 is anticipated to be fairly stable at \$3.0 million per year.

Question. With shrinking procurement and research budgets and very few new starts in future years, why should requirements for studies and analyses be increasing?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, MAY 5, 1993.

CHEMICAL WEAPONS AND DEMILITARIZATION

WITNESSES

DR. BILLY RICHARDSON, DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE (CHEMICAL MATTERS)

MICHAEL W. OWEN, ACTING ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS, LOGISTICS AND ENVIRONMENT)

BRIG. GEN. WATLER L. BUSBEE, USA, COMMANDER/DIRECTOR, U.S. ARMY CHEMICAL MATERIEL DESTRUCTION AGENCY

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning, the Committee considers the budget for the program to destroy chemical weapons and materials. The principal witnesses are Dr. Billy Richardson, Deputy Assistant for Chemical Matters, Office of the Assistant to the Secretary of Defense (Atomic Energy) and Mr. Michael Owen, Acting Assistant Secretary of the Army for Installations, Logistics, and Environment. They are accompanied by Brig. Gen. Walter Busbee, Commander/Director, U.S. Army Chemical Materiel Destruction Agency. Dr. Richardson and Mr. Owens, we will place your written statements in the record. Please summarize them and then we will proceed to questions.

SUMMARY STATEMENT OF MR. OWEN

Mr. OWEN. Good morning, Mr. Chairman. It is a great pleasure to appear before you today to discuss the United States Chemical Stockpile Disposal Program and the Non-Stockpile Chemical Materiel Program.

Appearing with me today as the technical expert witness is Brigadier General Walter Busbee, the Commander and Director of the United States Army Chemical Materiel Destruction Agency. Also accompanying General Busbee and me this morning is the Program Manager for Chemical Demilitarization, Charlie Baronian, and Colonel Lou Jackson, Program Manager for NSCM.

On March 6 of this year, we reached a major milestone in this program, the completion of operational verification tests of the Johnston Atoll Chemical Agent Disposal System, or JACADS. Although the overall OVT destruction rate was somewhat disappointing, of greater importance was that JACADS fully demonstrated that it could effectively destroy chemical weapons safely while meeting all environmental requirements.

The final OVT report is scheduled to be published by Mitre Corporation in May 1993. After the conduct of a review in July/August 1993, certification of successful completion of JACADS OVT will be

forwarded to the Secretary of Defense for submission to Congress in late July or early August 1993.

Critical development tests of the cryofracture technology were completed in February 1993 and all fiscal year 1992 design verification tests are scheduled for completion by July 1993. The report on critical cryofracture tests will be published, also by the Mitre Corporation, in June of 1993. At that time, a comparative analysis can be made between the cryofracture and baseline incineration technologies. As such, the earliest a decision can be made as to whether the Army will construct a cryofracture facility at Pueblo, Colorado, is July/August 1993.

All efforts, including environmental documentation and facility and process designs, are on track to support the construction of a cryofracture plant in January 1996, if a decision is made to construct such a facility. However, there is the possibility that the Army may have to revisit this decision after evaluation of the National Research Council's recommendations on alternative technologies.

Mr. Chairman, I am pleased to report to you that construction of the Tooele Chemical Disposal Facility, our first CONUS facility, is approximately 89 percent complete and is on schedule for completion at the end of July 1993, within the fiscal year 1992 cost estimate. At this time, a vigorous training program is ongoing to prepare the Laboratory Core Group, chemists, monitor operators, control room operators and maintenance personnel, for the beginning of systemization in early August 1993.

The size and complexity of the Army's mission in chemical demilitarization continues to grow. This year we face additional challenges in developing a comprehensive program plan for destroying the non-stockpile chemical materiel. As you know, the interim survey and analysis report was released on April 20, 1993. The final report, containing cost estimates and schedules for destroying the non-stockpile materiel, will be provided to the Congress in the fall of 1993. Mr. Chairman, as you know, there are many, many unknowns in the program, such as the condition and numbers of munitions to be recovered as well as transportation and destruction procedures. Therefore, the costs contained in this report will be provided as the Army's best estimate, and not validated costs to be used as the program's historical baseline.

Additionally, the National Research Council of the National Academy of Sciences' recommendations on alternative technologies to baseline incineration for use in destroying chemical agents and munitions will be provided to the Army in November 1993. We are initiating efforts to evaluate and assess any NRC recommendation against the congressionally mandated criteria.

The Army's report on evaluation of alternative technologies will be provided to the Congress by December 31, 1993.

Our fiscal year 1994 budget contains in total \$433 million for the Chemical Stockpile Disposal Program. That is broken out approximately \$125 million for procurement and \$308 million for operation and maintenance.

Additionally, in a separate appropriation, the Military Construction, Army, we are requesting \$108.9 million for the construction of

Anniston Disposal Facility and additional treaty compliance facility construction requirements.

Requests for proposal for the Anniston Facility was released in April of 1992 and is currently scheduled for a construction start in March 1994.

Additionally, the budget also supports the fiscal year 1994 requirements for the Chemical Stockpile Disposal Program to meet the current revised schedule completion date, programmatic planning and equipment requirements for the Non-Stockpile Chemical Materiel Program; and the Emergency Preparedness Program at each of the proposed disposal sites.

The schedule and life cycle cost estimate for the Chemical Stockpile Disposal Program provided to you last year reflected a disposal completion date of December 2000 and associated costs of \$7.9 billion.

Mr. Chairman, I am pleased to report to you that the 1992 life cycle cost estimate of \$7.9 billion would, is, for the most part, a valid estimate for the program today had the program been allowed to remain on the 1992 schedule.

Under the current schedule, disposal completion date for the Chemical Stockpile Disposal Program is April 2003. This delay increased the life cycle cost estimate from \$7.9 billion to approximately \$8.6 billion. A revised life cycle cost estimate and program schedule will be developed and validated in 1994, after our evaluation of the National Research Council's report on alternative technologies.

Last year I informed you of the many management initiatives being implemented to improve overall program management and control. We are already seeing significant improvements at the Tooele Disposal Facility as a result of increased on-site project manager's authority, reduced management layering, improved command and control, and revised procedures for project control. We will continue to assess and monitor these initiatives.

In closing, Mr. Chairman, I wish to emphasize that we share the same goal as Congress and 136 nations for a global ban on chemical weapons. We appreciate the support and commitment of the Congress and the United States Government to the Chemical Stockpile Disposal Program. We believe this, coupled with the results of our program, was a strong inducement to the signing of the Chemical Weapons Convention in January 1993. We are proud of our efforts. However, to accomplish our mutual goal, focus must now be placed on staying the course and completing the mission of disposing of chemical warfare materiel using an available disposal technology which is safe to human health and the environment.

The Army looks forward to your continued support in this important national program.

On a personal note, I would like to offer thanks to you and your committee for your support as we have begun our initial findings in the Non-Stockpile Program and your personal interest in our work at American University earlier this year.

This concludes my remarks, Mr. Chairman. I will be glad to answer any questions you may have.

[The statement of Mr. Owen follows:]

RECORD VERSION

STATEMENT BY
MR. MICHAEL W. OWEN

ACTING ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS, LOGISTICS AND ENVIRONMENT)

BEFORE
SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

First Session, 103rd Congress

CHEMICAL DEMILITARIZATION PROGRAM

MAY 5, 1993

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE APPROPRIATIONS
COMMITTEE

Mr. Chairman and members of the committee, it is a pleasure for me to appear before this Subcommittee to discuss the Defense Department's Chemical Demilitarization Program (Stockpile Disposal Program and the Non-Stockpile Chemical Materiel Program). Appearing with me today is Brigadier General Walter Busbee, the Commander/Director of the U.S. Army Chemical Materiel Destruction Agency. We are pleased to have this opportunity to provide you with detailed information on the status of the activities of the program and to answer any questions you may have.

Last year was a pivotal year for the Chemical Stockpile Disposal Program as it achieved several major program objectives and overcame a number of obstacles which will lead to completion of the first full-scale disposal facility in the continental United States at Tooele, Utah later this year. Concurrently, the program management structure was strengthened to meet new challenges as the program conducts, in 1993, a revalidation of the technology for safe and environmentally compliant disposal of chemical warfare (CW) materiel.

As of April of this year, 142 nations, including the United States, signed the Chemical Weapons Convention in Paris to destroy all chemical weapons and agents as early as 2005. We believe that the United States government's commitment to the CSDP and the results our program have produced were strong inducements to that landmark agreement. The Army is proud of its contribution to the longstanding goal of a global ban on CW.

EVOLUTION AND STATUS OF THE CHEMICAL STOCKPILE DISPOSAL PROGRAM (CSDP)

The CSDP traces its lineage to the pioneering disposal and technology development programs at Rocky Mountain Arsenal, Colorado and the Chemical Agent Munitions Disposal System at Tooele, Utah in the mid-1970's. The Army was formally assigned responsibility for the nation's CW retaliatory stockpile in 1981 when it was designated as the Department of Defense (DoD) Single Manager for Ammunition, including the aging CW stockpile. As the M55 rocket was an obsolete weapon system which posed the greatest potential risk for safety and environmental hazards, plans were initiated at that time for the M55 Rocket Disposal Program. The M55 Rocket Disposal Program was subsumed by the CSDP when Congress authorized destruction of the entire U.S. unitary CW stockpile in 1985 (Public Law 99-145) in conjunction with the initial production of binary weapons. The decision to modernize the obsolete U.S. retaliatory-only stockpile is cited as a key factor which facilitated the Bilateral Destruction Agreement (signed in June 1990) between the U.S. and the former Soviet Union. The bilateral agreement with the Russians also set the stage for progress in the multilateral negotiations in Geneva.

The U.S. disposal program continues to exert considerable influence on international efforts to achieve a verifiable, global ban on chemical weaponry. DoD and the Army have intensified their technology exchange and treaty compliance efforts in support of the emerging Russian Federation disposal program. Also, specialists involved in the U.S. disposal program have played a key role in the ongoing United Nations Special Commission (UNSCOM) effort to oversee and verify the destruction of Iraq's chemical weapons stockpile. In addition to participation in the CW Destruction Advisory Panel, a number of Army personnel serve as members of the Chemical Destruction Group, which is providing day-to-day oversight of the destruction operations in Iraq.

Formal program initiation for the CSDP began in 1988, when the Army selected on-site disposal at eight storage sites in the continental U.S. as the best alternative from a human health and overall risk viewpoint. The eight storage sites are: Aberdeen Proving Ground, MD; Anniston Army Depot, AL; Blue Grass Army Depot, KY; Newport Army Ammunition Plant, IN; Pine Bluff Arsenal, AR; Pueblo Depot Activity, CO; Tooele Army Depot, UT; and Umatilla Depot Activity, OR. A comprehensive implementation plan was submitted to Congress in March 1988, which delineated plans, consistent with Public Law 99-145, to: (1) destroy the U.S. stockpile of lethal chemical agents and munitions by 1994; (2) provide maximum protection for the environment and the public; (3) dismantle the disposal facilities when disposal operations were complete; (4) establish a management organization headed by a general officer to conduct the disposal program; and (5) fund the program in a separate DoD account.

That initial plan and the mandated destruction completion date have been amended several times since the passage of Public Law 99-145, as a result of better definition of the program scope, recognition of the complexity of the task given the rapidly changing environmental and safety compliance requirements, and heightened public concerns with hazardous waste management and disposal in general. The fiscal year 1993 Defense Authorization Act (Section 171, Public Law 102-484) extended the completion date to the year 2004 in recognition of these changes, as well as to align the program more closely to the anticipated destruction milestones for the multilateral Chemical Weapons Convention.

A major change occurred in the program management arena in response to Congressional direction, DoD Title VI, House Appropriations Report 102-95, accompanying the Department of Defense Appropriation Act, 1992. Congress directed the Secretary of Defense to move vigorously on the previous year's direction to form a single office responsible for all DoD CW destruction activities. The U.S. Army Chemical Materiel Destruction Agency (USACMDA) was officially established on October 1, 1992 by

restructuring the Program Manager for Chemical Demilitarization (PMCD) and adding a military Program Manager for Non-Stockpile Chemical Materiel (PM NSCM). The latter program manager is responsible for developing a comprehensive plan, similar in scope to the 1988 Implementation Plan for the CSDP, for the expanded mission of disposal (or dismantlement) of former CW materiel manufacturing and testing facilities; binary munitions and their associated production facilities; and recovered CW materiel on active and formerly used defense sites. A full report on the scope of this effort, including estimated costs and schedules, will be completed this fall and submitted to Congress.

Since the Army last appeared before this committee in April 1992, the following major milestones have occurred in the Chemical Demilitarization Program:

- Completion of Operational Verification Testing (OVT) at the Johnston Atoll Chemical Agent Disposal System (JACADS) in the Pacific in March 1993.

- The Chemical Demilitarization Training Facility at Aberdeen Proving Ground, Maryland is providing training for new laboratory personnel for the Tooele site and initial training of replacement operators for JACADS. It also serves as a "test-bed" to support baseline technology process enhancements.

- Attainment last month of 85 percent construction/equipment installation completion status for the Tooele Chemical Agent Disposal Facility (TOCDF) in Utah.

- Completion, in February 1993, of the critical tests for the Cryofracture/Incineration Demonstration Plant (C/IDP) development program.

- In June 1992, the National Academy of Sciences, under the auspices of the National Research Council's standing oversight Committee on Review and Evaluation of the Army CSDP, chaired a public symposium on alternative chemical demilitarization technologies.

- Issuance of the Request for Proposal for a demilitarization facility at Anniston, Alabama on April 22, 1992.

There were also substantial challenges in the execution of the DoD Chemical Demilitarization Program in this timeframe. The most critical issues facing the Army as the executive agency for this pioneering program with international ramifications are the following:

- Alternative Technologies: The issue of what technology to use to destroy the stockpile must be resolved. Alternatives to incineration of chemical agents must be reviewed in terms of

environment and human safety, schedule and cost effectiveness, and ability to meet treaty commitments. Additionally, the viability of the cryofracture/incineration technology will also be resolved.

- Affordability: There is a continuing need for adequate resources in appropriate periods to execute stockpile disposal operations at nine storage locations within the Congressional completion date while meeting U.S. treaty obligations and the most stringent safety and environmental compliance criteria faced by any DoD program. The emerging Non-stockpile Program will further stress the Department's resources.

- Public Acceptance:

- There is a fundamental requirement to demonstrate to communities surrounding the eight chemical weapons storage sites, their representatives, and regulatory agencies that the best and safest technologies are being used wisely to dispose of obsolete chemical warfare agents, weapons, and materiel.

- A key to obtaining public acceptance is the resolution of Congressional and public interest in alternatives to incineration and their likely impact on program completion and treaty requirements.

- We must also satisfy concerns about transportation issues, emergency preparedness measures, and ultimate demolition of disposal facilities.

- Program Management: In an environment of continual program uncertainties driven by external forces, the Department of the Army (DA) must ensure complete integration of diverse and sometimes conflicting requirements while maintaining effective cost, schedule and performance controls.

- Non-stockpile Chemical Materiel Program: DA must develop a comprehensive program plan for dealing with buried and re-covered chemical munitions and other non-stockpile chemical materiel, to include former production facilities and chemical warfare related equipment.

ENVIRONMENTAL BACKGROUND AND REQUIREMENTS

When Public Law 99-145 was passed, a new environmental document had to be developed to assess the impacts of destroying the complete chemical stockpile as opposed to just the M55 rocket. Environmental analyses are required by the National Environmental Policy Act (NEPA) for all significant activities. At the suggestion of the U.S. Environmental Protection Agency and the President's Council on Environmental Quality (CEQ), the Army developed a programmatic environmental impact statement (PEIS)

for destroying the stockpile within the United States. As part of the document, the following alternatives for destruction of the continental United States (CONUS) stockpile were evaluated: (1) destruction at each existing storage installation (on-site disposal alternative); (2) destruction at two regional destruction centers (regional disposal alternative); (3) destruction at a national destruction center (national disposal alternative); (4) destruction at each existing storage installation, except for those with relatively high population density (partial relocation alternative); and (5) continued storage (no action alternative). After two years and numerous public meetings, some of which were very controversial, the Final Programmatic Environmental Impact Statement (FPEIS) was completed in January 1988 and a Record of Decision was issued in February 1988. The Record of Decision concluded that the CONUS stockpile of chemical agents and munitions can be destroyed in a safe and environmentally acceptable manner and the environmental impact of facility construction and incident-free disposal operations would be minimal. The risk of catastrophic accidents was found to be very low for all programmatic disposal alternatives with the risk of continued storage the worst. Since the FPEIS analysis found that on-site disposal posed less risk of human health impacts than alternatives involving off-site movement of the stockpile, it was, therefore, the best choice from a public health, environmental, and emergency preparedness perspective. The Army selected the on-site disposal alternative as its preferred alternative.

Based on the results of the FPEIS, the Army plans to construct chemical disposal facilities at each of the eight chemical storage sites within the United States, modeled after the Johnston Atoll Chemical Agent Disposal System (JACADS) and tailored to the chemical stockpile located at each site. The first of these facilities is nearing construction completion at Tooele Army Depot, Utah.

Prior to constructing a CONUS-based chemical disposal facility, the Army is required to prepare a site-specific environmental impact statement (SSEIS) for each facility. These site-specific analyses are prepared in two phases. Phase I collects detailed site-specific data and analyzes that data to ascertain the validity of the original FPEIS findings. These reports either substantiate the FPEIS findings or conclude that a new analysis for a particular site must be undertaken. All relevant new information, such as the past movement of the chemical weapons from Germany to Johnston Island and results of the Operational Verification Tests at JACADS, must be and will be included in the Phase I reports.

Argonne National Laboratory (ANL), operated by the University of Chicago, performs an independent validation of each Phase I report. The Phase I report is required to be sent to

Congress with a written certification from the Army on the results of the Phase I review. If no significant differences in the databases are revealed, the Army validates the programmatic decision for that site and the SSEIS is then developed as Phase II of the process. Oak Ridge National Laboratory (ORNL) prepares the documents for both phases. Each affected state, the Department of Health and Human Services (DHHS), the Environmental Protection Agency (EPA), and the Federal Emergency Management Agency (FEMA) are cooperating agencies in the preparation of both phases of the process. To date, site-specific EISs have been completed for Tooele Army Depot and the Anniston Army Depot.

Developing environmental impact statements (EISs) is but one requirement in meeting environmental regulations in this program. The Conservation and Recovery Act (RCRA), which regulates the construction and operation of the proposed disposal facilities, represents another significant environmental activity for the CSDP. Prior to constructing any chemical disposal facility, the Army must obtain a RCRA permit from the affected state. A RCRA permit is a very comprehensive document that normally takes over 12 months to prepare and another 24 months to achieve state processing and approval. The cooperation of the state environmental department is critical. As an example, the State of Utah expedited its processing and a RCRA permit was granted for the Tooele facility in 10 months after submittal of the second application. In the case of Alabama, a permit application was submitted in July 1990 and only recently has substantive work been done to process the document. If major changes are needed to the destruction process or equipment after a RCRA permit is granted, the state also must approve the changes before the plant can operate. The RCRA permit is a critical milestone, as no construction can begin on a plant until the affected state has issued the required document.

In addition to EISs and RCRA permits, the Army must obtain air permits from the states that comply with the Clean Air Act and Toxic Substance Control Act (TSCA) permits from EPA for sites with M55 rockets. These environmental requirements, of course, were established to protect the health of the public and to protect the environment - goals that are completely in line with those of the Army. Each step of the environmental documentation process, however, can affect schedule milestones. Our current programmatic schedule reflects our best estimates of the time it will take to complete each environmental milestone, based on our experiences at JACADS and in Utah. However, since the Army does not control environmental permitting, only actual experience will bear out the validity of our estimate. We will continue to work closely with the EPA and the individual states to insure that all the environmental requirements are met.

During the past year, several states have passed or are preparing to pass laws which place severe constraints, including

prohibitively restrictive environmental standards, on the chemical stockpile disposal facility proposed for that state. The States of Kentucky and Indiana have passed such laws and the State of Maryland currently has a similar law in legislation. Some provisions of these state laws are so restrictive that a chemical demilitarization facility may be delayed or not be built and the chemical stockpiles would continue to be stored at the site for an indefinite period of time.

The 1993 Defense Authorization Act has had a significant impact on the development of environmental documents and permits. Development of environmental documentation, both environmental impact statements and permit applications, has ceased for the "low volume" sites at Aberdeen Proving Ground, MD; Newport Army Ammunition Plant, IN; and Blue Grass Army Depot, KY; pending the Army's report on alternative technologies. The Army has essentially delayed completion of environmental impact statement documents for the other sites pending the findings of the alternative technology study. In addition, at least two states, Alabama and Colorado, have slowed work on issuing the environmental permits until the Army's evaluation of alternative technologies is completed in December 1993.

The General Accounting Office (GAO) Report, Chemical Weapons Destruction, Issues Affecting Program Cost, Schedule, and Performance, dated January 21, 1993 has a discussion of environmental issues impacting the program. One of the significant conclusions of the GAO report was that the Army's management of the environmental permit process can be improved. Although the Army generally concurs with the GAO findings on this subject, we must emphasize that the environmental permitting process is fraught with uncertainty and some aspects are out of our control. We have and will continue to improve those aspects of the permitting process that we are able to influence. We will work constructively with the Environmental Protection Agency and the affected states to insure adequate public input and regulatory reviews in a reasonable timeframe.

The Army would like to emphasize that a GAO report states that operational verification testing at our facility on Johnston Island has demonstrated safe operations. In addition, the report found that our Johnston Island chemical demilitarization facility also has demonstrated that it meets all environmental standards when destroying chemical agents and munitions.

JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM (JACADS) OPERATIONAL VERIFICATION TEST (OVT)

Johnston Atoll is located nearly 800 miles southwest of Hawaii and is the site of the chemical stocks that were originally stored in Okinawa and Germany (6.6% of U.S. total). The Johnston Atoll Chemical Agent Disposal System (JACADS) is the

world's first fully integrated chemical munitions destruction facility. Public Law 100-456 required an Operational Verification Test (OVT). Its purpose is to verify that the JACADS disposal process will safely destroy chemical munitions and agents while meeting all federal safety and environmental regulations. The OVT program included agent-filled GB rockets (OVT I), agent-filled VX rockets (OVT II), mustard-filled ton containers (OVT III), and mustard-filled artillery projectiles (OVT IV). Last year, we informed the Congress of the results of the first two OVTs, involving the disposal of GB and VX-filled rockets.

The MITRE Corporation (a not-for profit entity affiliated with the Massachusetts Institute of Technology) is the independent evaluator for the OVT program. MITRE published the final OVT II Report in November 1992. The final throughput figures are somewhat different than those previously reported. The average rocket throughput for the entire test was 19.6 rockets per hour (RPH) versus a goal of 14.7 RPH. The throughput rate for the full rate portion of the test was 20.6 RPH versus a goal of 24.0 RPH. During the last 10 days of processing, JACADS was able to maintain a throughput rate of 25.3 RPH. The GAO has reported that differing methodologies were used to calculate OVT II destruction rates as compared to OVT I. The calculation method was revised by MITRE to reflect the modified plant operating scenario utilized during that campaign, and the revised method provided more useful information for use in forecasting throughput rates for future operations at JACADS and CONUS facilities. Both the Army and MITRE feel that the methodology used to calculate the throughput rate is an accurate reflection of the performance of the JACADS. This issue is not likely to be resolved to GAO's satisfaction until JACADS resumes full-scale rocket disposal operations in the fall of 1993.

OVT Phase III commenced on August 3, 1992 and ended on September 5, 1992. All 67 HD filled ton containers (TCs) stored on Johnston Island, plus one non-stockpile TC filled with HD sludge, were drained and thermally decontaminated. Over 113,000 pounds of agent HD were incinerated. A RCRA trial burn was completed on the metal parts furnace and a government demonstration burn was completed on the liquid incinerator. The limited number of TCs available (68) and the restrictions of the test burn program did not allow sustained production runs; however, during the trial burn, processing rates exceeded the OVT III full rate goal (0.5 TCs per hour) and the single shift goal (0.7 TCs per hour).

OVT Phase IV commenced on September 23, 1992. After a brief shakedown period, operations started on October 7, 1992 and ended on March 6, 1993. A 14-day engineering shakeout period preceding the test was utilized to make adjustments to the demilitarization machines because of differences between the actual stockpile

munitions and the simulant munitions used to test the machines. A total of 23,978 M60 105mm HD filled projectiles were drained and thermally decontaminated. Over 35,000 pounds of agent HD were incinerated. There were no agent releases to the environment, no agent exposures to workers and only one minor lost time injury. For much of the test throughput rate, goals were not achieved, principally due to problems with the robots which move the projectiles between conveyors and the demilitarization machines and problems draining the sludge-like material found in some of the munitions. The plant was shut down during the period December 25, 1992 to January 1, 1993 to make improvements to these systems. Performance of the robots improved substantially; however, the draining problems were not solved until late February 1993. Subsequently, the performance of the plant improved drastically during the last week of OVT IV, sustaining production at or above the throughput goal of 56.0 projectiles per hour for most of that period. The MITRE Corporation is still developing the final throughput analysis. The Final OVT IV Report is scheduled for release in May 1993.

A fire occurred in the Explosive Containment Room "A" on January 2, 1993. There were no agent releases or personnel injuries and all safety and monitoring systems functioned as expected. (The room is designed to safely contain the detonation of a full-up explosively configured projectile.) Total property damage is estimated at \$65,000. The cause of the fire could not be definitely determined, but the suspected cause was friction generated by a fuse booster cup becoming wedged against a moving conveyor belt which contained explosive material. The conveyor has been redesigned and a fast-acting water deluge system has been installed over the belt. Plant procedures have also been changed to minimize the amount of loose explosive material available in the Explosive Containment Room to support combustion.

Finalization of the OVT Summary Report is currently ongoing. This report is being prepared by the OVT oversight contractor, the MITRE Corporation. The OVT Summary Report summarizes the results from the four OVT campaigns and makes projections for the CSDP based upon the results. The final report is scheduled for release in May 1993 and will be the basis for the Secretary of Defense certification of OVT completion.

TOOELE ARMY DEPOT CHEMICAL AGENT DISPOSAL FACILITY TOOELE, UTAH

The Tooele Chemical Agent Disposal Facility (TOCDF) is the first of the eight facilities to be constructed within the continental United States (CONUS). It represents the second fully integrated, industrial sized chemical disposal facility (JACADS was the first) based on the lessons learned from Chemical Agent and Munition Disposal System (CAMDS) and JACADS.

Tooele Army Depot stores more chemical munitions and agent than any of the other storage sites (42% of the chemical stockpile) and has the greatest mixture of munition types.

The systems contract for the plant was awarded to EG&G Defense Materials Group, Incorporated, of Falls Church, Virginia in September 1989. The estimated Military Construction, Army (MCA) construction costs remain at the programmed \$180 million with a construction completion date of July 31, 1993. The project construction costs and scheduled completion date have stabilized at the levels submitted in the April 1992 Life Cycle Cost Estimate.

The Tooele construction effort is currently 86% complete. All of the major items of equipment have been set in place. The remainder of the equipment installation (connection of the equipment to the process piping and the central control system) is nearing completion. All efforts are on schedule for the formal end of construction and transition to systemization now scheduled for July 31, 1993. This completion date is supported by a detailed resource-loaded network analysis schedule and has been validated as "achievable" during an independent review conducted by Science Applications International Corporation, the USACMDA Program and Integration Support Contractor.

Negotiations for the next phase of the Tooele project (plant systemization) were completed in August 1992 within the government cost estimate for this activity. Systemization involves the integration of the various demilitarization and incineration systems, prove-out with inert simulant-filled munitions, training and certification of personnel, and the required surrogate test burns. A detailed resource-loaded activity schedule was developed to define all the activities that must be completed prior to the start of toxic operations in February 1995. It incorporates the lessons learned from the start-up on Johnston Island and demilitarization equipment systemization at the Chemical Demilitarization Training Facility (CDTF). Currently, all activities are on schedule for the August 1, 1993 start of systemization.

CHEMICAL DEMILITARIZATION TRAINING FACILITY (CDTF)

Training at the CDTF was initiated in September 1991 with the training of laboratory personnel for the Tooele facility. Training of actual chemical demilitarization plant workers was started in July 1992 with the training of JACADS operations and maintenance personnel on specific equipment systems utilized during the fourth Operational Verification Test (OVT) campaign. During March 1993, the second group of TOCDF laboratory personnel completed their training requirements, and the training of a third group began.

The CDTF was also utilized to provide training to other Department of Army personnel during the last year. Personnel slated to serve on the Department of Army Inspector General's staff during reviews of JACADS and CAMDS were provided training on the demilitarization program. Personnel from the Blue-Grass Army Depot, Newport Army Ammunition Plant, Anniston Army Depot, Umatilla Depot Activity, and Pine Bluff Arsenal received training on the Automatic Continuous Air Monitoring System (ACAMS) at the CDTF Laboratory, as did personnel from the U.S. Army Chemical and Biological Defense Agency (formerly the U.S. Army Chemical Research, Development and Engineering Center) and the U.S. Army Technical Escort Unit, which supports recovery operations for chemical munitions and agents.

In addition to training activities, the CDTF has proved to be invaluable as a troubleshooting facility for the JACADS/CSDP processes. By utilizing the control system and the equipment located at the CDTF, the Program Manager for Chemical Demilitarization has been able to assist JACADS in optimizing performance. This has been accomplished through modifications and testing of both the computer control code and specific equipment utilized in projectile processing.

The first TOCDF operations and maintenance personnel training is scheduled to begin in April 1993. In addition, efforts are currently underway to fully integrate the JACADS replacement workforce into the CSDP training program. The Army Audit Agency has projected that this integration would result in a better-trained worker, and may result in cost savings to the JACADS project. Also in 1993, the Army expects to begin an intern program for Russian CW disposal plant management and technical personnel. Initially, 6 to 10 Russian disposal personnel will be trained with an annual goal of 12 specialists.

SCHEDULE REVISIONS AND LIFE CYCLE COST UPDATES

A revised programmatic schedule and program life cycle cost estimate (LCCE) was submitted to the Congress last year after being reviewed by a modified Army Systems Acquisition Review Council (ASARC) in March 1992. The modified ASARC also considered the Request for Proposal (RFP) for the Anniston systems contract. Since last year, the programmatic schedule has been revised to reflect Congressional guidance contained in the FY93 Authorization Bill, which again extended the program completion date to December 2004. In addition, the Office of the Secretary of Defense provided guidance concerning the financial aspects of the program. As a result of the two actions, the programmatic schedule was significantly altered. The new schedule depicts a plan to build one plant a year with the exception of FY95, where two facility systems contracts (Umatilla, OR and Pine Bluff Arsenal, AR) will be awarded. The last disposal facility will be started in FY 1999 and stockpile disposal operations will be

completed in April 2003. This schedule will meet both the Congressional and Chemical Weapons Convention treaty requirements. This schedule does not include any impact that might result from the Alternative Technology Report.

Prior to these revisions, the schedule milestones were being met. The Tooele facility was scheduled to complete construction as forecasted and is currently on track to finish by July 31, 1993. The Anniston RFP was released in April 1992 and was scheduled for award in August 1993. However, the 1993 Military Construction Conference Report (102-888) deleted funding for Anniston until the Congress completes their review of the Army's Evaluation of Alternative Technologies Report. This report is scheduled to be delivered to the Congress on December 31, 1993. As a result, the procurement process has been extended and slowed down. Depending on the outcome of the report, the award for the Anniston systems contract is now scheduled for March 1994. This date is predicated upon receipt of the Resource Conservation and Recovery Act (RCRA) Permit, by March 1994, from the State of Alabama and timely completion of Congressional review of the Army's Evaluation of Alternative Technologies.

PROGRAM MANAGEMENT: OVERSIGHT AND INITIATIVES

As reported last year, the Army decided to place the CSDP management under the disciplined structure of a modified Army Systems Acquisition Review Council (ASARC) for internal oversight. Although the CSDP is not a hardware program in the classical sense, it is a major process and systems acquisition effort. This approach has been very beneficial in focusing senior Army and DoD leadership on the major issues in the CSDP and their resolution. The Assistant Secretary of the Army (Installations, Logistics and Environment) (ASA (IL&E)) was formally designated as the Program Decision Authority (PDA). The Commander, USAMCDA reports directly to the ASA (IL&E), in essence functioning and managing the CSDP and the emerging non-stockpile chemical materiel destruction effort in a manner very similar to that employed by Program Executive Officers in designated acquisition programs within DoD.

In addition to adoption of the ASARC management and reporting forum, a number of other significant streamlining initiatives were taken to improve oversight, reporting and management. The PDA restructured the program's procurement, legal and management support relationships:

- the Head of Contracting Authority/Principal Contracting Officer (HCA/PCO) was transferred from the U.S. Army Corps of Engineers (USACE), Huntsville, Alabama Division to the U.S. Army Materiel Command for future disposal plants.

- the U.S. Army Armaments, Munitions and Chemical Command (AMCCOM) at Rock Island Arsenal, Illinois, which is responsible for contract administration for Government Owned-Contractor Operated (GOCO) munitions arsenals and ammunition plants, will award systems contracts, beginning with the Anniston Chemical Agent Disposal Facility and administer all systems contracts.

- AMCCOM will delegate Administrative Contracting Officer (ACO) authority to USACE, Huntsville Division for the construction, equipment acquisition and equipment installation contract line items of the systems contracts as the single construction support agency for the remaining plants.

These changes eliminate transfer of procurement authority at the completion of construction and equipment installation (a critical point in the system contract) and will ensure that lessons learned during the construction and equipment installation efforts are transferred more effectively to future sites. Also, the process and facility lessons-learned program for the JACADS was expanded to formalize and ensure implementation of procurement, operational, training and environmental lessons learned which will be incorporated into the CONUS plants.

During the past year, USACMDA has fully capitalized the capabilities of the Program and Integration Support Contractor to provide for analysis and program and project integration support not available from USACMDA, AMC, and the USACE. The availability of this competitively awarded contract to provide detailed engineering, technical, and management support analyses has been absolutely essential in improving the Army's ability to proactively manage multiple, complex and interrelated contracts.

NON-STOCKPILE CHEMICAL MATERIEL PROGRAM

The Program Manager for Non-stockpile Chemical Materiel (PM NSCM) provides centralized management and direction to the Department of Defense (DoD) program for the safe destruction of all United States non-stockpile chemical materiel (NSCM) in accordance with federal laws, policies, regulations and directives, and state and local laws and regulations. The mission includes: identifying types of agents and materiel and quantities that require treatment; developing transportation and destruction procedures; supporting ratified Chemical Weapons Convention provisions; and developing schedule and cost estimates for implementing the program.

Non-stockpile chemical materiel is divided into five categories: buried chemical materiel; recovered chemical weapons; former chemical weapons production facilities; binary chemical weapons; and miscellaneous chemical warfare materiel (CWM). Miscellaneous CWM is defined by the Chemical Weapons Convention as unfilled munitions and devices, and equipment

specifically designed for use with the employment of chemical weapons. The information concerning the locations, quantities and make-up of each of these categories was not readily available, thus, the program manager had to determine the scope of the non-stockpile destruction effort. The Interim Survey and Analysis Report, containing information gathered to date, was provided to the Congress on April 20, 1993. The Final Survey and Analysis Report for the non-stockpile chemical materiel program, providing updated information, will be provided to the Congress in the fall of 1993.

The preferred option for any CWM burial site will be to destroy the materiel on-site. However, at private or state-owned land, on-site destruction using conventional destruction means may present a problem, especially if the site is not isolated from the public. Transportation and off-site destruction of the CWM is an option, but there may be occasions when it may not be appropriate to transport CWM, particularly where significant opposition to transport of this materiel through the public domain is encountered. To address this situation, the program manager will develop new or alternative methods for treating CWM on-site, ensuring maximum safety to human health and the environment.

The Congress has directed that programmatic schedule and cost estimates be developed and provided for the NSCM Program. To date, much effort has been expended to accurately define the scope (i.e., locations and quantities) of the non-stockpile problem. However, much additional work is required to develop reliable cost and schedule estimates for this program. The Army plans to provide Congress a preliminary cost and schedule estimate for destroying all of the known NSCM. This information will be reflected in the Final Survey and Analysis Report to be provided to the Congress in the fall of 1993. It must be noted, however, that the estimates will be predicated on assumptions regarding the many uncertainties inherent to any program at this early stage of maturity.

The U.S. Army Chemical Materiel Destruction Agency is currently performing CWM remediation efforts at three locations: the Former Raritan Arsenal, New Jersey; the Former Fort Segarra, U.S. Virgin Islands; and the Former Camp American University, Washington, D.C. All three of these locations are formerly used defense sites that are no longer under DoD control. The lessons-learned from these remediation activities will be used by the Army to assist in the development of a comprehensive program plan in dealing with non-stockpile chemical materiel.

CHEMICAL STOCKPILE EMERGENCY PREPAREDNESS PROGRAM (CSEPP)

During the past year, significant emphasis in the CSEPP has been placed on completion of the engineering design of the alert

and notification systems surrounding the eight chemical warfare agent storage installations. These alert and notification systems will serve both the storage installation and the community surrounding the installation. Several state emergency management agencies have issued requests for proposal (RFP) to procure, install and test the sirens. It is expected that the engineering designs for all siren systems will be completed this fiscal year. States have been developing estimates of the requirements for tone alert radios in the communities. These estimates were submitted through our partner in CSEPP, the Federal Emergency Management Agency, and are included in the fiscal year 1994 budget. The tone alert radios, coupled with sirens, make up the alert and notification system for the installations and the communities.

To date, communications systems have been approved for most states, with the final approval for the remaining states expected by the end of fiscal year 1993. Funding for these remaining systems is being requested in the fiscal year 1994 budget. During the past year, about half of the communication systems have been installed and tested. The remaining systems are in various states of implementation. Some states have issued RFPs, while others are now developing the final requirements and will be issuing RFPs over the next several months.

The development of the third critical hardware component of CSEPP, the automated information systems, is moving forward with deliberate speed. At the direction of the Congress in fiscal year 1993, the Department of the Army assumed the lead in developing a single automation system for the program that will serve both the installation and the civilian jurisdictions. This single track system is being built upon the interim dual track system composed of the Emergency Management Information System (EMIS) for the installations and the Interim Baseline System (IBS) for the civilian communities. As an interim measure, EMIS is now being installed at most state and county emergency operations centers. These systems will be used as their respective operational systems until the single track system has been completed. A contractual arrangement was made with Pacific Northwest Laboratories to develop the single track system, immediately after fiscal year 1993 funds became available. An interjurisdictional advisory group was established to provide the necessary input from the user community. The project is on schedule to be completed by the end of calendar year 1994.

The Department of the Army initiated technical studies during the past year to determine the extent of potential contamination outside the installation boundaries in case of a catastrophic release. The Army also initiated a site-specific review of the accident planning base to determine the impact that program changes have on emergency response. These two studies directly affect protective action decisions for civilian

emergency response officials and are critical to the progress of the program. Since these studies directly impact protective action decisions, they also affect funding decisions likely to arise during fiscal year 1994 and beyond. The research on contamination is expected to be completed by the end of this fiscal year, while the site-specific accident review is expected to be completed by the second quarter of fiscal year 1994.

The Exercise Program got into full swing during the last year. Full-scale exercises were held at Pueblo Depot Activity, Colorado; Blue Grass Army Depot, Kentucky; and Tooele Army Depot, Utah. A recurring exercise schedule has been developed for all installations, with four of the eight sites scheduled for full-scale exercises over the next year. Table Top and Direction and Control Exercises are scheduled for the other four sites.

One of the highlights of the year was the comprehensive conference held in Huntsville, Alabama. This conference involved all major participants in the program from the federal, state, and local and county levels of government. It was an excellent opportunity for communicating the latest guidance, discussing issues and listening to concerns from all participants.

For fiscal year 1994, \$46.1 million of operations and maintenance and \$33 million of procurement funds have been budgeted.

PUBLIC OUTREACH

The Army fully recognizes its responsibility to actively involve the communities potentially affected by the Chemical Stockpile Disposal Program. As such, we have taken every opportunity to meet with various citizens groups across the country. However, limited personnel resources and hiring constraints have severely limited our ability to implement a comprehensive outreach program. These constraints were only recently relaxed to allow us to become more proactive in this critical arena. The local Intergovernmental Consultation and Coordination Boards (ICCB) have continued to provide an essential liaison with the communities. The National ICCB met in Salt Lake City last June, and toured the Tooele Chemical Agent Disposal Facility.

As you are undoubtedly aware, Public Law 102-484 provided for the establishment of Citizens Advisory Commissions at each of the low-volume stockpile sites. A letter was sent to the Governors of those states in January encouraging early formation of those commissions. To date, only the Indiana Commission has been identified. However, we look forward to a close and mutually beneficial dialogue with those commissions, when named.

CRYOFRACTURE/INCINERATION PROGRAM

As outlined in Public Law 101-166, the Army continues to pursue development of the cryofracture program in three specific areas: testing, engineering design, and environmental activities.

In the spring of last year, siting of the cryofracture facility was changed from Tooele, Utah, to Pueblo, Colorado. Building the cryofracture facility at Tooele would result in two full-scale plants at Tooele and would increase the life cycle cost of the Chemical Stockpile Disposal Program (CSDP) by the cost of an entire plant (ten versus nine). Further, the cryofracture facility at Tooele would be under utilized since the current baseline plant would have been in operation for some five years. The strength of this technology is best realized in application to the Pueblo stock (projectiles). Those munitions and agents not available at Pueblo will be demonstrated with simulant munitions and simulant agents. Under the current programmatic schedule and operational scenario, only one plant will be constructed at Pueblo, either baseline or cryofracture.

The testing program, which is being conducted by General Atomics, is expected to be completed by July 1993. All critical tests needed to make a decision were completed in February 1993. The MITRE Corporation is conducting an independent evaluation of the tests results following criteria specifically developed for cryofracture and outlined in the Design Verification Test (DVT) Directive. Although several test anomalies have been encountered during portions of the testing, they have been satisfactorily resolved through redesign and/or procedural changes and retesting.

Design of the cryofracture facility is continuing at a reduced, but significant, pace until a decision regarding construction is made. Currently, Burns and Roe Industrial Services Company (BRISC), the architectural and engineering firm providing the design, is expected to complete the design in August 1994 contingent on a July 1993 decision to construct. It should be pointed out, however, that any decision regarding the proposed cryofracture plant at Pueblo made this summer may have to be revisited in late 1993 when the NRC's recommendations on alternative technologies are fully known, as would be the case with baseline facilities since both processes utilize high-temperature, direct agent/explosives/munition body incineration.

Environmental efforts continue in support of the cryofracture program. Science Applications International Corporation (SAIC), the USACMDA Program and Integration Support Contractor, has prepared the draft permit applications for the Resource Conservation and Recovery Act (RCRA) and Clean Air Act (CAA) for the facility at Pueblo. Oak Ridge National Laboratory (ORNL) is engaged in preparing the project's Environmental Impact Statement (EIS).

In summary, all efforts required to support the start of construction of a cryofracture plant at Pueblo in January 1996 are on track.

ALTERNATIVE DISPOSAL TECHNOLOGIES

The National Research Council (NRC) of the National Academy of Sciences is scheduled to deliver two reports this year on Alternative Technologies to the current baseline/incineration systems. The first report, from the Alternative Technology Committee, will provide an assessment of various technologies which could be utilized in the demilitarization effort. Technologies being considered range from those which could supplement existing incineration systems (such as adding charcoal treatment systems to the current pollution abatement systems) to different treatment and disposal approaches such as neutralization and super-critical water oxidation. The Alternative Technologies Committee Report is scheduled for publication in June 1993, followed by a public meeting to be held by the NRC.

Based on that report, the NRC Committee on the Review and Evaluation of the Army CSDP (Oversight Committee) will consider the technologies and report any findings or conclusions regarding alternate technologies. These recommendations will be released in November 1993.

The Army has initiated efforts to comply with Public Law 102-484, which requires the Secretary of the Army to submit a report to Congress by December 31, 1993, which addresses the NRC's recommendations for alternative technologies. The Army report will assess the recommended technologies against the Congressional criteria provided in Section 173 of Public Law 102-484; that is:

- The alternative technology must be substantially more safe than the current technology, AND
- The alternative technology must be equal to or more cost effective than the current technology, AND
- Incorporation of the alternative technology must not result in extension of the program schedule beyond December 31, 2004.

In order to meet the mandated December 31, 1993 report schedule, the Army report must be prepared in parallel with the NRC's reports. This requires close coordination between Army and NRC elements to ensure that the Army report fully addresses the recommendations of the Committee and public inputs, as well. In addition, the Army has initiated studies of various pollution abatement system alternatives in which the Committee has expressed interest. These studies will be completed in July 1993

to allow for their incorporation into the Alternative Technology Report.

PROGRAM SCHEDULE AND COST/UNCERTAINTIES

The Alternative Technologies report adds a level of uncertainty to the stockpile disposal program. There are three possible outcomes arising from the report. First, the report can find that the current technology being used is satisfactory and the program can proceed as scheduled. Second, the report may conclude that the current technology is satisfactory but improvements should be made to enhance the process. Lastly, the report may recommend the use of a completely new technology for the destruction of chemical weapons and agent.

If the conclusion is that the current technology is acceptable, the program can proceed as scheduled. Based on Congressional and OSD guidance, the stockpile disposal program will complete stockpile disposal operations in April 2003. The costs associated with this program stretch-out will add approximately \$700 million to the life cycle cost estimate (LCCE). These changes will bring the total LCCE to a total of \$8.6 billion.

The effects of the two other possible conclusions cannot be forecasted at this time. Once the Alternative Technology Report is released, the Army will be able to define the impacts and develop a new schedule and LCCE. If alternative technologies are adopted, the Army plans on submitting a new implementation plan approximately six months after the Alternative Technologies Report is released.

1993 LIFE CYCLE COST UPDATE

The estimated life cycle cost has grown to \$8.6 billion from the 1992 life cycle cost of \$7.9 billion. The estimated \$0.7 billion increase is a result of program stretch-out based on Congressional and DoD guidance and primarily reflects the impacts of resultant inflation. The FY93 budget originally reflected construction of the second CONUS disposal facility at Anniston Army Depot to begin in FY93. Congress deleted FY93 funds requested for construction of the Anniston facility and prohibited obligation of Military Contract, Army funds for this facility until Congressional review of the Army's Alternative Technology Report, due to Congress in December 1993. The FY94 budget for the military construction appropriation reflects the initiation of construction of the Anniston Disposal Facility. In response to this change, DoD stretched the program for affordability reasons. The current projected completion date for disposal operations is now April 2003, well within the Congressional mandate of December 31, 2004. A planning schedule is shown at Table 1, below:

TABLE 1
REVISED PROGRAMMATIC CHEMICAL DISPOSAL PLANNING SCHEDULE

| <u>Location</u> | <u>Start
Facility
Constr</u> | <u>Start
Prove-Out</u> | <u>Start
Opns</u> | <u>End
Opns</u> |
|--------------------|--------------------------------------|----------------------------|-----------------------|---------------------|
| JACADS | Nov 85 | Aug 88 | Jul 90 | Feb 96 |
| Training Facility | Jun 89 | N/A | Oct 91 | Apr 02 |
| Tooele Army Depot | Sep 89 | Aug 93 | Feb 95 | Apr 00 |
| Anniston Depot | Mar 94 | Jan 97 | Jul 98 | Aug 01 |
| Umatilla Depot | Jan 95 | Nov 97 | May 99 | Dec 01 |
| Pine Bluff Arsenal | Jan 95 | Sep 97 | Mar 99 | Nov 01 |
| Pueblo Depot | Jan 96 | Nov 98 | May 00 | Jan 02 |
| Blue Grass Depot | Jan 97 | Nov 99 | May 01 | Oct 02 |
| Aberdeen Prov Grd | Jan 98 | Jun 00 | Jun 01 | Jun 02 |
| Newport Ammo Plant | Jan 99 | Jun 01 | Jun 02 | Apr 03 |

Note: This schedule does not take into account delays from major system failures or litigation and is dependent on funding support.

FISCAL YEAR 1994 BUDGET

For fiscal year 1994, the budget for the Chemical Stockpile Disposal Program (CSDP) totals \$542.5 million. This consists of \$433.6 million for the Chemical Agents and Munitions Destruction, Army (CAMD,A) appropriation and \$108.9 million for the Military Construction, Army (MCA) appropriation. The CAMD,A account is further divided into two budget activities: Procurement - \$125.5 million and Operation and Maintenance - \$308.2 million. (Note: These amounts do not add to the CAMD,A total, due to rounding.) Following are some of the significant activities scheduled for fiscal year 1994:

- Continue full-scale disposal operations at JACADS.
 - Testing operations at Chemical Agent Munitions Disposal System.
 - Continuation of systemization and operator training for Tooele Chemical Agent Disposal Facility.
 - Award of the systems contract for the construction, equipment installation, testing, operations, and closeout of the Anniston Chemical Agent Disposal Facility.
 - Issue requests for proposals for construction of the Umatilla Chemical Agent Disposal Facility and the Pine Bluff Chemical Agent Disposal Facility.
 - Continue site-specific design modifications and final site-specific environmental impact statements for the Pueblo Chemical Agent Disposal Facility, Blue Grass Chemical Agent Disposal Facility, and Aberdeen Chemical Agent Disposal Facility.
 - Continue the Chemical Stockpile Emergency Preparedness Program.
 - Begin munition reconfiguration operations at Tooele Army Depot and Anniston Army Depot.
 - Ongoing selection, testing, and acquisition of materiel and equipment in support of non-stockpile operations.
 - Submission of Final Report on Alternative Chemical Demilitarization Technologies to Congress.
- A summary of the fiscal year 1994 Chemical Demilitarization Program budget is at Table 2. For comparison purposes, the budgets for fiscal years 1992 and 1993 are also included.

CHEMICAL DEMILITARIZATION PROGRAM
FY 1994 President's Budget Submission
TOA (\$ M)

CHEMICAL AGENTS AND MUNITIONS DESTRUCTION, ARMY

| | <u>FY92</u> | <u>FY93</u> | <u>FY94</u> |
|--|-------------|-------------|-------------|
| Budget Activity 1: Research and Development | | | |
| Cryostructure Program | 13.9 | 4.0 | |
| Enhanced Agent Monitoring | <u>0</u> | <u>2.5</u> | |
| Total Research and Development | 13.9 | 6.5 | |
|
Budget Activity 2: Procurement | | | |
| Programmatic Engineering Services | 32.1* | 15.7 | 11.8 |
| Emergency Preparedness Program | 12.9 | 12.1 | 33.0 |
| Johnston Atoll Chemical Agent Disposal System | 2.4 | 1.6 | 1.7 |
| Chemical Agent Munitions Disposal System | 0.9 | 2.6 | 0.2 |
| Chemical Demilitarization Training Facility | 0.0 | .0 | .0 |
| Tooele Chemical Agent Disposal Facility | 50.9* | 30.4 | 5.4 |
| Anniston Chemical Agent Disposal Facility | 25.4 | 170.3 | 0.0 |
| Umatilla Chemical Agent Disposal Facility | 0.7 | 1.4 | 29.5 |
| Pine Bluff Chemical Agent Disposal Facility | 2.7 | 6.4 | 23.2 |
| Pueblo Chemical Agent Disposal Facility | 1.0 | 4.2 | 0.7 |
| Blue Grass Chemical Agent Disposal Facility | 1.1 | 0.0 | 1.1 |
| Newport Chemical Agent Disposal Facility | 1.1 | 0.0 | .0 |
| Aberdeen Chemical Agent Disposal Facility | 0.6 | 0.0 | .0 |
| Cryostructure Long Lead Time Process Equipment | 20.0 | .0 | .0 |
| Non-Stockpile Chemical Materiel Program | 0.0 | .0 | 7.9 |
| Contract Administration/Audit (DBOF) | <u>0.0</u> | <u>0.0</u> | <u>11.0</u> |
| Total Procurement | 151.8 | 244.7 | 125.5 |

| | <u>FY92</u> | <u>FY93</u> | <u>FY94</u> |
|---|--------------|--------------|--------------|
| Budget Activity 3: Operation and Maintenance | | | |
| Program Management--PM Cml Demil | 6.1 | 7.4 | 8.3 |
| Program Management--USACMDA | 3.4 | .4 | .9 |
| Emergency Preparedness Program | 25.9 | 38.4 | 46.1 |
| Program and Integration Support | 9.7 | 8.5 | 8.6 |
| Program Oversight, Environmental and Engineering Services | 16.8 | 35.1 | 16.0 |
| Johnston Atoll Chemical Agent Disposal System | 100.1 | 93.5 | 107.6 |
| Chemical Agent Munitions Disposal System | 20.2 | 24.0 | 24.1 |
| Chemical Demilitarization Training Facility | 1.8 | 4.5 | 6.6 |
| Tooele Chemical Agent Disposal Facility | 17.4 | 37.3 | 43.4 |
| Anniston Chemical Agent Disposal Facility | 2.5 | 4.3 | 16.8 |
| Umatilla Chemical Agent Disposal Facility | 0.7 | 0.8 | 0.8 |
| Pine Bluff Chemical Agent Disposal Facility | 1.0 | 1.0 | 1.2 |
| Pueblo Chemical Agent Disposal Facility | 0.2 | 1.9 | 2.0 |
| Blue Grass Chemical Agent Disposal Facility | 0.3 | 0.5 | 1.0 |
| Newport Chemical Agent Disposal Facility | 0.2 | 0.2 | 0.1 |
| Aberdeen Chemical Agent Disposal Facility | 0.2 | 0.3 | 0.5 |
| Program Management--PM Non-Stockpile Cml Mat'l | 0.1 | .6 | 1.5 |
| Non-Stockpile Cml Mat'l Program | <u>2.1</u> | <u>3.7</u> | <u>18.7</u> |
| Total Operation and Maintenance | 208.7 | 267.4 | 308.2 |

| | | | |
|--|----------------|----------------|---------------|
| Total Chemical Agents and Munitions Destruction, Army | 374.4** | 518.6** | 433.6* |
|--|----------------|----------------|---------------|

| | <u>FY92</u> | <u>FY93</u> | <u>FY94</u> |
|---|--------------|-----------------|-----------------|
| MILITARY CONSTRUCTION, ARMY | | | |
| Tooele Chemical Agent Disp Fac, Phase IV | 81.7 | | |
| Anniston Chemical Agent Disp Fac, Phases II/III | 29.2 | | 108.9 |
| Anniston Army Depot | 4.1 | | |
| Umatilla Depot Activity Support | 3.6 | | |
| Umatilla Depot Activity Utilities | 7.5 | | |
| Pine Bluff Arsenal | | 15.0 | |
| Pueblo Depot Activity | <u>6.3</u> | <u> </u> | <u> </u> |
| Total Military Construction, Army | 132.4 | 15.0 | 108.9*** |

* May not add, due to rounding.

** CAMD,D

*** Excludes \$3.5M for Chemical Weapons Treaty Facilities at Tooele Army Depot, UT (\$1.5M) and Anniston Army Depot, AL (\$2.0M).

SUMMARY

In conclusion, Mr. Chairman, the Chemical Demilitarization Program is a national program with significant visibility, impact, and importance. The United States is the only nation which has developed and demonstrated a technology which can safely destroy large quantities of chemical weapons. It is also a very complex program, involving a wide variety of external agencies and numerous oversight organizations providing advice, recommendations and requirements. Including the FY94 budget request, over \$2.6 billion has been expended or requested in support of the U.S. Chemical Demilitarization Program, to date.

The CSDP continues to evolve. As we continue with the operation of JACADS and complete construction of the Tooele facility, we are proceeding toward the goal of destroying this nation's stockpile of chemical weapons. At the same time, we are evaluating alternative chemical demilitarization technologies to assure ourselves and the nation that the safest and most cost effective technologies are employed to complete this critical program. Disposal of non-stockpile chemical materiel (NSCM) is a new program with importance and urgency comparable to the CSDP. This program is in its infancy and will undoubtedly experience many of the same growing pains as did the CSDP or any other program at this early stage of maturity. The Army's management structure and priorities have also evolved to insure that institutionalized cost and schedule controls, improved decision-making policies, and streamlined command and control policies are employed to manage both programs. Those policies and priorities will enable us to effectively manage the known variables of the Chemical Demilitarization Program. They will also enable us to better anticipate and manage change, but they will not prevent unknown, unforeseeable, and uncontrollable factors from changing the program. The goal of both programs continues to be to destroy the United States chemical weapons stockpile and non-stockpile materiel safely while meeting all environmental requirements, and doing so as cost effectively as possible without jeopardizing safety or the environment. As we proceed toward our goal, we are constantly aware that the public is very interested in these programs and are committed to be forthright, open and responsive to the public need for full disclosure, open communications and timely information. In all our endeavors, we will never forget that safety and protection of the environment are first. The impact to our workers, our families, the communities and our nation is too great not to fully commit to safety as the program's paramount consideration.

In closing, I just commend the people that work the Chemical Demilitarization Program. We are truly fortunate that we have such dedicated, professional personnel who genuinely care about the jobs they are doing. Without their work and the support of

the Congress and the other federal agencies, the program could not be successful.

Mr. Chairman, thank you for the opportunity to present my statement to you and to members of your Committee. We look forward to responding to your questions.

Mr. MURTHA. Dr. Richardson.

SUMMARY STATEMENT OF DR. RICHARDSON

Dr. RICHARDSON. We appreciate your continuing support and your continuing interest in our programs, Mr. Chairman.

Mr. Owens covered our own Chemical Weapons Destruction program. I will try to tell you what we see as the general global situation and our coverage of chemical and biological defense, support to arms control agreements and a few words on our efforts to help the Russians with their Chemical Weapons Destruction program.

The proliferation of chemical and biological weapons has continued and is continuing. At least 24 nations have a chemical weapons capability at present. At least 9 nations have a biological warfare capability at present.

Mr. MURTHA. Say that again, please.

Dr. RICHARDSON. At least 24 nations around the world have some kind of chemical warfare program. At least 9 nations have a biological warfare program.

Mr. MURTHA. What is the range of chemical—tear gas, or what are you talking about?

Dr. RICHARDSON. Twenty-four nations have lethal agents, lethal in the sense of mustard usually thought of as a blistering agent, nerve agents, et cetera.

Mr. MURTHA. So they have an ability to project on to the battlefield?

Dr. RICHARDSON. Generally, that is true. The ability to do that varies a lot.

Coupled with this, you have about 15 nations with ballistic missile capability and that is probably the most worrisome aspect of that to be able to deliver.

Mr. MURTHA. One of the things we worried about in Saudi Arabia were Scuds with chemical warheads.

Dr. RICHARDSON. Exactly.

Mr. MURTHA. So 15 nations worldwide have this capability?

Dr. RICHARDSON. That is correct. That is worrisome in that improved guidance systems for the Scuds are going to proliferate as well.

Mr. MURTHA. Bosnia or the Serbs—do either of them have that capability?

Dr. RICHARDSON. —.

A year or so ago, there was a thing that came to be called Croatian cobwebs, a spider-web-like material.

There was lot of suspicion that was a chemical warfare agent. Nothing came of that. It didn't seem plausible and nothing has shown that it is plausible.

Mr. MURTHA. Do they have mortars?

Dr. RICHARDSON. Yes, and artillery weapons.

Mr. MURTHA. Do we know if they have any ability to project that on to the battlefield?

Dr. RICHARDSON. We do not. In the face of that proliferation, we have had, of course, for some 24 years efforts to develop a Chemical Weapons Convention. A large part of that process was completed

13 to 15 January this year when the U.S. and 129 other nations signed that treaty.

That treaty will enter into force in January 1995 if 65 nations have ratified it by that time.

Between now and 1995, there is a Preparatory Commission which works the fine details of how does one train inspectors, how many people should be on the inspection team, how to set up a data base for tracking declarations.

The United States is also supporting the efforts of a verification feasibility experts group looking at the possibility of strengthening the Biological Warfare Convention of 1972. Thus, we are faced with working chemical and biological defense at the same time for a threat that is certainly present and perceived quite heavily at the top levels of DOD as well as working arms control.

In chemical and biological defense, our greatest concern in the last years has been in the area of biological defense. We are in the process of establishing a joint program which would apply across the Services, with a joint program office. We are also looking at holding a Defense Acquisition Board meeting of the Biological Defense program.

That would significantly increase attention in this area.

In chemical arms control, we are supporting a Preparatory Commission, but we are also working how the United States and particularly how the Services would comply with bilateral agreements with Russia as well as the Chemical Weapons Convention.

I will say a few words about the Russian chemical weapons situation. They, of course, have acknowledged having a stockpile of 40,000 agent tons. Their most severe problems are in the area of dealing with local governments_____.

Mr. MURTHA. What does that mean? How would you measure that and give an example?

Dr. RICHARDSON. Agent tons to the actual amount of agent regardless of the weapon it is in. I have had to do this occasionally trying to extrapolate from agent tons to munition tons and have used a factor of ten.

It might be a bit higher than that, but say 400,000 tons of munitions.

Mr. MURTHA. How does that compare with our stockpile?

Dr. RICHARDSON. Our stockpile is 30,000 tons and General Busbee has made progress in destroying part of that.

Declaration by Russia of 40,000 is significantly lower than estimates of all the Western intelligence countries before the declaration.

Mr. MURTHA. Do you doubt the declaration?

Dr. RICHARDSON. I would doubt it in detail. There is some reporting that they have small quantities that they are not tracking that well.

I think some of it is just organization. Some have suggested that they took those actions to get the amount down perhaps to match the declaration.

Mr. MURTHA. Is there indication they are selling to Iran or North Korea?

Dr. RICHARDSON. No. That is an area of concern on proliferation of the weapons themselves and also expertise. I know of no evidence, however, of that happening.

In the Russian situation, they have said they will destroy the stuff. They took responsibility for the Soviet Union stockpile.

They say it is all on Russian territory. Their principal problem is dealing with local governments and local populations.

Mr. DICKS. Do the Russians have the money to do this?

Dr. RICHARDSON. I would say money is a matter of priorities. Before they get to the money, they have another problem. For example, in Russia, you have constituent organizations called semi-autonomous states. Three of those where the Russians hope to do chemical weapons destruction have banned either destruction or transport of chemical weapons.

The Russians talk about a Chernobyl syndrome. We trusted you once on environmental and safety things. Why should we trust you now?

They did publish a very brief plan last October which was provided to their Supreme Soviet. We obtained that plan in February. It was a plan for destruction at five sites. It accounted for only 43 percent of the stockpile, not the whole stockpile.

That plan has been rejected by the Supreme Soviet for inadequate consideration of safety, health and environment. It has essentially been rejected by local republics.

On July 30, 1992, the Deputy Secretary of Defense signed with the Russians an agreement to provide \$25 million in support for their destruction program. We have not made all the progress on that that we would like. As I say, the primary reason is that the Russians have problems internally.

Mr. Chairman, that is a very brief summary, but it covers the areas I would hope to cover with you.

[The statement of Dr. Richardson follows:]

RECORD STATEMENT

STATEMENT BY

DR. B RICHARDSON

DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE

(CHEMICAL MATTERS)

BEFORE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

MAY 5 1993

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE APPROPRIATIONS COMMITTEE

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE. THANK YOU FOR THIS OPPORTUNITY TO DISCUSS THE DEPARTMENT OF DEFENSE CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM, CHEMICAL DEMILITARIZATION PROGRAM, AND CHEMICAL WEAPONS TREATY VERIFICATION RESEARCH AND DEVELOPMENT PROGRAM. I SHOULD ALSO MENTION OUR INVOLVEMENT IN THE DESTRUCTION OF THE FORMER SOVIET UNION CHEMICAL WARFARE STOCKPILE UNDER THE NUNN-LUGAR DISMANTLEMENT ACCOUNT OF THE 1993 DEFENSE AUTHORIZATION ACT, AND WELCOME THE OPPORTUNITY TO REPORT ON EFFORTS TO DATE. THE DEPARTMENT APPRECIATES THE COMMITTEE'S INTEREST AND SUPPORT IN THESE AREAS.

THE CHANGING ENVIRONMENT

OUR 1994 DEFENSE STRATEGY STRESSES INITIATIVES TO MEET THE FOUR DANGERS SECRETARY ASPIN HAS HIGHLIGHTED IN THE NEW GLOBAL SECURITY ENVIRONMENT. THREATS TO STABILITY IN KEY REGIONS THROUGHOUT THE WORLD HAVE BECOME AMERICA'S PRINCIPAL MILITARY CONCERN. TO ADDRESS THESE THREATS, A PRIMARY TASK WILL BE TO MAINTAIN THE HIGH READINESS AND QUALITY OF OUR FORCES. AN EQUALLY IMPORTANT DANGER ARISES FROM POTENTIALLY HOSTILE REGIMES POSSESSING OR ACQUIRING WEAPONS OF MASS DESTRUCTION, AND THE MEANS TO DELIVER THEM. DEPARTMENT EFFORTS TO ADDRESS THESE DANGERS INCLUDE A STRONG CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM.

THE CONTINUING PROLIFERATION OF CHEMICAL AND BIOLOGICAL WEAPONS WORLDWIDE, COMBINED WITH THE MEANS TO DELIVER THEM, HAS SIGNIFICANTLY AFFECTED AND WILL CONTINUE TO INFLUENCE UNITED STATES SECURITY INTERESTS. THE SPREAD OF CHEMICAL WARFARE CAPABILITY TO AT LEAST 24 NATIONS, BIOLOGICAL WARFARE CAPABILITY TO AT LEAST 9 NATIONS, AND BALLISTIC MISSILE CAPABILITY TO MORE THAN 15 NATIONS IS OF SERIOUS CONCERN TO THE UNITED STATES AND OUR ALLIES. DIRECTOR OF CENTRAL INTELLIGENCE R. JAMES WOOLSEY HIGHLIGHTED THIS CONCERN DURING HIS 24 FEBRUARY 93 TESTIMONY TO THE SENATE WHEN HE STATED: "OF THE MANY ISSUES THAT HAVE EMERGED IN RECENT YEARS, FEW HAVE MORE SERIOUS AND FAR-REACHING IMPLICATIONS FOR GLOBAL AND REGIONAL SECURITY AND STABILITY THAN THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION". WEAPONS OF MASS DESTRUCTION INCLUDE CHEMICAL AND BIOLOGICAL AS WELL AS NUCLEAR WEAPONS. ACCORDINGLY, ELEMENTS OF THE DOD CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM SUPPORT DEPARTMENT PRIORITIES UNDERPINNING OUR NATIONAL MILITARY STRATEGY. TRENDS IN THE PROLIFERATION OF CHEMICAL/BIOLOGICAL WEAPONS DICTATE THAT ESSENTIAL ELEMENTS OF THE CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM CONTINUE TO RECEIVE EMPHASIS. ELEMENTS OF A STRONG CHEMICAL/BIOLOGICAL DEFENSE PROGRAM INCLUDE SUPPORT OF A ROBUST TECHNOLOGY BASE TO EXPLORE "HIGHEST LEVERAGE" TECHNOLOGY THRUSTS AND CONTINUED EMPHASIS ON RESEARCH, DEVELOPMENT, TESTING AND EVALUATION TO PROVIDE OUR FORCES IMPROVED CHEMICAL/BIOLOGICAL DEFENSE EQUIPMENT FOR DETECTION, IDENTIFICATION AND WARNING; INDIVIDUAL, MEDICAL AND COLLECTIVE PROTECTION; AND

DECONTAMINATION. IN ADDITION, ADEQUATE PROCUREMENT FUNDING IS REQUIRED TO EQUIP OUR FORCES WITH NEW/IMPROVED EQUIPMENT.

ARMS CONTROL EFFORTS AND A STRONG CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM ARE THE KEY TO CHEMICAL AND BIOLOGICAL DETERRENCE. THE DEPARTMENT IS INCREASING THE LEVEL OF EFFORT IN THIS AREA WITH THE GOAL OF DENYING A SIGNIFICANT MILITARY ADVANTAGE TO ANY AGGRESSOR WHO MAY CONTEMPLATE USING CHEMICAL OR BIOLOGICAL WEAPONS AGAINST OUR FORCES. OUR CHEMICAL AND BIOLOGICAL DEFENSE CAPABILITY MUST BE SUFFICIENT TO CONVINCE ADVERSARIES OF THE HIGH RISK OF FAILURE ASSOCIATED WITH THE USE OF CHEMICAL AND BIOLOGICAL WEAPONS.

PROGRAM OVERVIEW

THE FY94 CHEMICAL/BIOLOGICAL DEFENSE, U.S. CHEMICAL DEMILITARIZATION, AND CHEMICAL WEAPONS TREATY VERIFICATION RESEARCH PROGRAMS BUILD ON PROGRESS CONGRESS HAS SUPPORTED IN THE PAST. THE DEPARTMENT CONTINUES TO AIM TOWARD A STRONG, INTEGRATED CHEMICAL/BIOLOGICAL DEFENSE PROGRAM WHICH IS CAPABLE OF PROTECTING OUR FORCES UNDER ALL CONDITIONS OF DEPLOYMENT. CONCURRENT WITH THESE DEFENSIVE MEASURES, WE ARE PROCEEDING TOWARDS DESTRUCTION OF OUR STOCKPILE OF CHEMICAL AGENTS AND MUNITIONS. THE UNITED STATES ALONG WITH 130 OTHER NATIONS SIGNED THE CHEMICAL WEAPONS CONVENTION (CWC) DURING THE PERIOD 13-15 JAN 1993 IN PARIS. CHEMICAL AND BIOLOGICAL WEAPONS ARMS CONTROL

AGREEMENTS CONTINUE TO BE A MAJOR POLICY INTEREST. THE CHEMICAL WEAPONS TREATY VERIFICATION RESEARCH AND DEVELOPMENT PROGRAM, DIRECTED BY CONGRESS IN 1989, IS A MAJOR CONTRIBUTOR TO THAT AREA. THE DEPARTMENT IS ALSO MAKING PREPARATIONS FOR UNITED STATES COMPLIANCE WITH PROVISIONS OF THE GLOBAL CHEMICAL WEAPONS CONVENTION AND THREE BILATERAL AGREEMENTS WITH RUSSIA.

OUR FY94 BUDGET REQUEST FOR CHEMICAL/BIOLOGICAL DEFENSE, CHEMICAL DEMILITARIZATION AND CHEMICAL TREATY VERIFICATION ACTIVITIES IS ABOUT \$1.3 BILLION. FORTY-NINE PERCENT IS FOR CHEMICAL/BIOLOGICAL DEFENSE, APPROXIMATELY FORTY-TWO PERCENT IS FOR CHEMICAL DEMILITARIZATION AND ABOUT NINE PERCENT IS FOR CHEMICAL TREATY ACTIVITIES.

DOD CHEMICAL/BIOLOGICAL DEFENSE PROGRAM

SINCE THE MID 1980S, OUR BUDGET FOR CHEMICAL/BIOLOGICAL DEFENSE HAS BEEN IN THE \$500-600 MILLION PER YEAR RANGE, OR ABOUT 1/5 OF ONE PERCENT OF THE TOTAL DEFENSE BUDGET. IT REPRESENTS AN INEXPENSIVE INSURANCE POLICY FOR OUR FORCES. THE DEPARTMENT'S FY94 REQUEST FOR CHEMICAL/BIOLOGICAL DEFENSE EQUIPMENT IS APPROXIMATELY \$630 MILLION, ABOUT ONE-FIFTH OF ONE PERCENT OF THE TOTAL DOD BUDGET. THESE FUNDING RESOURCES SUPPORT CONTINUED RESEARCH, DEVELOPMENT, EVALUATION AND PROCUREMENT OF CHEMICAL/BIOLOGICAL DEFENSE SYSTEMS WHICH PROVIDE EFFECTIVE PROTECTION TO OUR FORCES WITH THE SMALLEST POSSIBLE ADVERSE

IMPACT ON WARFIGHTING CAPABILITY. A MAJOR AREA OF INTEREST THIS YEAR IS OUR INCREASED EMPHASIS ON DEFENSES AGAINST BIOLOGICAL WARFARE AGENTS. CREDIBLE ANALYSES INDICATE THAT OPTIMAL EMPLOYMENT OF BIOLOGICAL AGENTS COULD RESULT IN LARGE HAZARD AREAS, MUCH LARGER THAN WITH CHEMICAL AGENTS. THE DEPUTY SECRETARY OF DEFENSE AND THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF DESIGNATED BIOLOGICAL WARFARE DEFENSE AS A PRIORITY REQUIREMENT.

THE JOINT REQUIREMENTS OVERSIGHT COUNCIL (JROC) REVIEWED THE BIOLOGICAL DEFENSE PROGRAM AND IN AUGUST 1992 MADE THE FOLLOWING RECOMMENDATIONS TO THE UNDER SECRETARY FOR ACQUISITION:

- ESTABLISH A VACCINE PRODUCTION AND STOCKPILE CAPABILITY.
- CONVENE A MILESTONE 0 DEFENSE ACQUISITION BOARD
- ESTABLISH OVERSIGHT OF THE PROGRAM BY THE DEFENSE ACQUISITION BOARD.
- MAINTAIN CONTINUED EMPHASIS ON FIELDING OF BIOLOGICAL DETECTION CAPABILITY

WE HAVE SUBMITTED IN THIS BUDGET A NEW DEFENSE BUDGET LINE WHICH FUNDS AN ADDITIONAL \$60M IN FY94 FOR THE DOD BIOLOGICAL DEFENSE PROGRAM. THESE RESOURCES PROVIDE PROCUREMENT DOLLARS TO FIELD A NON-DEVELOPMENTAL ITEM (NDI) VERSION OF THE BIOLOGICAL INTEGRATED DETECTION SYSTEM (BIDS), AN INTERIM THEATER LEVEL BIOLOGICAL DETECTION SYSTEM, BY FY96. IN ADDITION, RESEARCH AND DEVELOPMENT FUNDS FOR PRODUCT IMPROVEMENT OF THE NDI BIDS AND FOR

ACCELERATION OF DEVELOPMENTAL BIOLOGICAL TACTICAL AND STRATEGIC STAND-OFF TECHNOLOGY ARE PROVIDED.

IN ANY REGION WHERE U.S. FORCES MAY DEPLOY, THE CHEMICAL AND BIOLOGICAL ENVIRONMENT WILL AFFECT JOINT OPERATIONS. OUR EFFORTS WILL THEREFORE MORE THAN EVER BEFORE STRESS JOINT APPROACHES IN CB DEFENSE OPERATIONS, TRAINING, DOCTRINE AND ACQUISITION.

OUR PRIORITIES ARE: (1) FIELDING RAPID DETECTION, EARLY WARNING, AND RELIABLE IDENTIFICATION SYSTEMS TO ENSURE AVOIDANCE OF CONTAMINATION FROM CHEMICAL/BIOLOGICAL AGENTS; (2) THE DEVELOPMENT AND PRODUCTION OF NEEDED VACCINES; (3) MORE EFFECTIVE TOOLS AND INPUTS TO ASSESS BATTLEFIELD RISKS CAUSED BY CHEMICAL AND BIOLOGICAL HAZARDS; AND (4) INCREASED EMPHASIS ON INDIVIDUAL AND UNIT OPERATIONAL CHEMICAL AND BIOLOGICAL DEFENSE TRAINING.

IN THE LARGER COMPOSITE OF TOTAL CHEMICAL/BIOLOGICAL DEFENSE, INTELLIGENCE COLLECTION AND ANALYSIS ARE VITAL, PERHAPS MORE IMPORTANT THAN EVER BEFORE AND ARGUABLY THE MOST CRITICAL ELEMENT IN CHEMICAL/BIOLOGICAL DEFENSE READINESS. SALIENT CONSIDERATIONS INCLUDE:

- THE CHEMICAL WEAPONS CONVENTION WILL OPERATE WITH AN INTERNATIONAL INSPECTORATE WHICH WILL ACT ON CHALLENGES OF SUSPECTED TREATY VIOLATIONS RAISED BY MEMBER STATES. INTELLIGENCE SHOULD FORM THE BASIS OF THOSE CHALLENGES.

- FOR AT LEAST THE NEXT DECADE MUCH OF CHEMICAL/BIOLOGICAL DEFENSE DEVELOPMENT MUST BE TARGETED TOWARD SPECIFIC THREAT AGENTS. DETECTION AND VACCINE DEVELOPMENT ARE OBVIOUS EXAMPLES, NECESSITATING PRECISE INTELLIGENCE.
- THE TECHNICAL NATURE OF CHEMICAL/BIOLOGICAL WARFARE INTELLIGENCE PRECLUDES RAPID RAMP-UP IN THIS TYPE OF ACTIVITY, SO THAT REDUCTIONS IN EMPHASIS CAN BE REVERSED ONLY OVER A PERIOD OF YEARS.

THE WORLD HAS BECOME MORE FREE, BUT IT IS ALSO LESS STABLE. REGIONAL INSTABILITY CONTRIBUTES TOWARDS CHEMICAL AND BIOLOGICAL PROLIFERATION; WE CANNOT AFFORD TO NEGLECT THE IMPACT. CONTINUED EMPHASIS ON INTELLIGENCE COLLECTION AND ANALYSIS WILL BE KEY TO DEFINING THESE PROLIFERATION THREATS.

CHEMICAL DEMILITARIZATION

THE DESTRUCTION OF THE UNITED STATES CHEMICAL STOCKPILE IS A HIGH PRIORITY DEPARTMENT OF DEFENSE PROGRAM. IN THIS COMPLEX PROGRAM, THE CONGRESS AND THE DEPARTMENT OF DEFENSE SHARE A COMMON GOAL: THE SAFE, EXPEDITIOUS, AND ENVIRONMENTALLY SOUND DESTRUCTION OF OUR STOCKPILE OF LETHAL TOXIC CHEMICALS.

WE ARE THE ONLY NATION WHICH HAS DEVELOPED AND DEMONSTRATED A TECHNOLOGY TO SAFELY DESTROY LARGE QUANTITIES OF CHEMICAL WEAPONS. DESTRUCTION RATES OBTAINED DURING OPERATIONAL VERIFICATION TESTING RECENTLY COMPLETED AT THE JOHNSTON ATOLL

CHEMICAL AGENT DISPOSAL SYSTEM (JACADS) SHOW THAT WE ARE GAINING OPERATIONAL MATURITY IN ENVIRONMENTALLY SAFE, AUTOMATED CHEMICAL WEAPONS DESTRUCTION. THROUGHPUT RATES HAVE IMPROVED AND THE LESSONS LEARNED ARE BEING APPLIED TO THE CONSTRUCTION OF FUTURE DISPOSAL FACILITIES. THE ARMY HAS TAKEN NUMEROUS STEPS TO IMPROVE THE OVERALL MANAGEMENT AND EXECUTION OF THE PROGRAM.

RUSSIAN CHEMICAL DEMILITARIZATION

THE UNITED STATES AND RUSSIAN FEDERATION HAVE SIGNED AN AGREEMENT FOR JOINT COOPERATION IN THE SAFE, SECURE, AND ENVIRONMENTALLY SOUND DESTRUCTION OF THE FORMER SOVIET UNION'S STOCKPILE OF CHEMICAL WEAPONS. THE AGREEMENT HAS PROVISIONS FOR ASSISTING THE RUSSIANS IN DEVELOPING A NATIONAL DESTRUCTION PLAN; HOSTING RUSSIAN INTERNS IN U.S. DESTRUCTION FACILITIES; PROVIDING U.S. SAFETY AND ENVIRONMENTAL TECHNOLOGY AND EQUIPMENT; TECHNICAL VISITS BY KEY RUSSIAN OFFICIALS TO INCLUDE DEMONSTRATIONS; AND TRAINING OF KEY PERSONNEL.

CHEMICAL WEAPONS DESTRUCTION IS A DIFFICULT PROBLEM FOR RUSSIA. REGIONAL GOVERNMENTS HAVE BANNED THE MOVEMENT OF CHEMICAL WEAPONS ACROSS THEIR REGIONS BASED ON ENVIRONMENTAL AND ECONOMIC CONCERNS.

DEPARTMENT TECHNICAL REPRESENTATIVES PLAN TO VISIT MOSCOW IN THE NEAR FUTURE. WE PLAN TO DISCUSS ESTABLISHMENT OF A PROJECT

OFFICE IN MOSCOW MANNED BY A SMALL U.S. STAFF TO ASSIST IN DEVELOPING A NATIONAL CW DESTRUCTION PLAN AND TO EXPEDITE IMPLEMENTATION OF A CENTRAL ANALYTICAL LABORATORY TO BE SUPPORTED BY NUNN-LUGAR FUNDS.

CHEMICAL WEAPONS TREATY SUPPORT

WE ARE CONTINUING OUR WORK ON THE CHEMICAL VERIFICATION TECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM. THE SIGNING OF THE CHEMICAL WEAPONS CONVENTION (CWC) AND THE CONVENING OF THE PREPATORY COMMISSION, CHARGED WITH DEVELOPING THE DETAILED ORGANIZATIONAL STRUCTURE AND OPERATIONAL PROCEDURES OF THE ORGANIZATION FOR THE PROHIBITION OF CHEMICAL WEAPONS (OPCW), CHANGES THE FOCUS OF ACTIVITY IN THIS AREA. THE DOD EFFORT HAS BEEN AIMED AT DEVELOPING TECHNOLOGIES AND PROCEDURES FOR THE VERIFICATION ASPECTS OF THE CWC. OVER THE NEXT TWO YEARS WE WILL BE FINALIZING THESE PROGRAMS AND WORKING IN THE VENUE OF THE EXPERT GROUPS CONVENED BY THE PREPATORY COMMISSION TO ASSIST IN THE DEVELOPMENT OF PROCEDURES AND PROTOCOLS FOR USE BY THE OPCW, WHICH ARE BASED ON THE KNOWLEDGE AND TECHNOLOGIES DERIVED FROM THE LAST THREE YEARS OF EFFORT. WE ANTICIPATE SUPPORTING THE PREPCOM WORKING GROUPS WITH MEMBERS OF EXPERT GROUPS, BASELINE PAPERS DERIVED FROM U.S. WORK AND WITH SHORT NOTICE TECHNICAL ANALYSIS. ADDITIONALLY WE ANTICIPATE THAT DOD WILL BE CALLED UPON TO SUPPORT THE U.S. RATIFICATION PROCESS. ASSUMING THE U.S. AND 64 NATIONS RATIFY THE CWC, THE TREATY WILL ENTER INTO FORCE

IN 1995.

IN ANTICIPATION OF A 1995 ENTRY INTO FORCE, DOD IS PLANNING FOR IMPLEMENTATION OF AND COMPLIANCE WITH THE CWC. UNDER THE PURVIEW OF THE DOD IMPLEMENTATION WORKING GROUP, WE HAVE INSTITUTED A PROGRAM OF TRIAL INSPECTIONS AND IMPLEMENTATION PLANNING. USING AN OSD DEVELOPED APPROACH, EACH SERVICE IS PRODUCING PLANS FOR ENSURING THAT DOD FACILITIES ARE PREPARED TO MEET U.S. OBLIGATIONS UNDER THE CWC. IN THIS CONTEXT WE ARE ALSO SUPPORTING THE COMPLETION OF THE BILATERAL AGREEMENTS BETWEEN THE U.S. AND RUSSIA. THE FINAL STEPS IN COMPLETING PHASE TWO OF THE WYOMING MEMORANDUM OF UNDERSTANDING ARE AWAITING APPROVAL IN THE RESPECTIVE CAPITOLS. THE BILATERAL DESTRUCTION AGREEMENT HAS BEEN COMPLETED BY THE DELEGATIONS AND IS AWAITING OFFICIAL APPROVAL. DOD HAS SUPPORTED THESE NEGOTIATIONS WITH SHORT NOTICE TECHNICAL ASSESSMENT DURING THE NEGOTIATIONS AND WILL CONTINUE TO BE INVOLVED DURING PREPCOM DISCUSSIONS ON ACCEPTING BILATERAL PROCEDURES FOR USE BY THE OPCW.

THE THIRD REVIEW CONFERENCE ON THE BIOLOGICAL WEAPONS CONVENTION (BWC) WAS HELD IN SEPTEMBER 1992. AT THAT CONFERENCE MANY ISSUES WERE RAISED WHICH WILL REQUIRE TECHNICAL SUPPORT TO RESOLVE. THE ISSUE OF MOST CONCERN IS THE MOVE BY A NUMBER OF STATES PARTIES TO "MAKE THE BWC VERIFIABLE". WE ARE SUPPORTING U.S. PARTICIPATION IN THE VERIFICATION FEASIBILITY EXPERTS GROUP WHICH WAS ESTABLISHED BY THE REVIEW CONFERENCE. THIS SUPPORT ENTAILS EVALUATION OF PROPOSED CONFIDENCE BUILDING MEASURES AND

TECHNICAL ANALYSIS OF OTHER ISSUES RAISED BY EXPERTS.

WITH THE CHEMICAL WEAPONS CONVENTION SIGNED AND EFFORTS UNDERWAY ON THE DETAILS OF ITS IMPLEMENTATION, THIS IS A TIME OF TRANSITION. ABOUT 20 PERCENT OF THE FY94 BUDGET FOR TREATY VERIFICATION RESEARCH AND DEVELOPMENT IS BEING ORIENTED TOWARD BILATERAL DESTRUCTION AGREEMENTS WITH RUSSIA AND ANALYSES OF BIOLOGICAL WEAPONS CONTROL.

SUMMARY

RECENT WORLD EVENTS HAVE FOCUSED INTEREST ON THE POSSIBILITY OF CHEMICAL/BIOLOGICAL WARFARE. SUCCESS IN ARMS CONTROL INITIATIVES WILL NOT ELIMINATE THE NEED FOR EFFECTIVE CHEMICAL/BIOLOGICAL DEFENSIVE TRAINING AND IMPROVED EQUIPMENT. RESEARCH AND DEVELOPMENT PROGRAMS MUST ENSURE SURVIVABILITY OF OUR FORCES AGAINST CHEMICAL AND BIOLOGICAL THREAT AGENTS THAT MAY BE USED IN DIFFERENT REGIONS OF THE WORLD. A STRONG CHEMICAL/BIOLOGICAL DEFENSIVE CAPABILITY REDUCES THE PROBABILITY OF BECOMING INVOLVED IN A CHEMICAL OR BIOLOGICAL WAR BY REDUCING POTENTIAL ADVANTAGES OF THE USE OF THESE WEAPONS AGAINST OUR FORCES.

KOREA/IRAN CHEMICAL CAPABILITY

Mr. MURTHA. Do we have any idea about Korea and Iran as far as whether they have ballistic missiles with chemical or biological warheads or both?

Dr. RICHARDSON. We firmly believe North Korea has a chemical capability and they have missile capabilities. Whether they have put the two together, I don't know. I know they are a source of proliferation for missile technology, selling it to Arab countries and that sort of thing.

That has been a significant diplomatic interest to the United States and other nations.

Iran should be viewed as the nation of greatest concern, in my view, in that they have been building up in every area of business in the chemical and biological area as much as submarines, tanks, aircraft, etc.

DESTRUCTION OF CHEMICAL WEAPONS IN IRAQ

Mr. MURTHA. I have a picture showing destruction of a chemical weapon in Iraq. We plan to spend \$8 billion on our chemical disposal when the U.N. seems to have a much cheaper way.

It looks like just a pit and they are drilling a hole in the war-head and letting the chemical drain into the pit.

Mr. OWEN. Not much more than that, sir, but they do add neutralizing solution before that step.

Dr. RICHARDSON. About 2½ years ago in this building, one of the principals in the U.N. group working this activity, Aquillas of Sweden, said we need something intermediate between JACADS and open-pit burning. He described the U.S. as being paranoid about environmental concerns.

It was felt they wouldn't be able to monitor the stuff there forever. They described the nerve agents going to something like a setting pond with neutralizing material, then they are mixed with concrete and buried. Mustard is direct incineration.

Mr. MURTHA. So this system being used in Iraq, because of our environmental concerns, would not work here even as an intermediate step?

Dr. RICHARDSON. No. Merthana is seen as an environmental disaster area anyway. With the haste desired by the U.N., they took less than perfect procedures.

Mr. OWEN. We have built our program on total compliance with 24 nations' environmental laws, whether it be ground contamination, Clean Air Act, Resource Conservation and Recovery Act compliance, and much of our program is driven by this country's very stringent environmental requirements.

Mr. MURTHA. So this kind of procedure, even though it is a lot cheaper, would not meet the environmental standards in the United States?

General BUSBEE. No, sir. There is another significant difference in the Iraqi stockpile. Those munitions and containers were damaged by allied bombing. One of my engineers was on the U.N. permanent team that went over. The munitions had deteriorated over the years since they had been stored in 130-degree temperatures, so

it is not comparable to our stockpile disposal effort for that reason, as well.

PROGRAM LIST AND SCHEDULE

Mr. MURTHA. Mr. Owen, you said the life cycle cost was going to go from \$7.9 billion to \$8.6 billion because of the program stretch out. I understand OSD proposed the delay, but you probably couldn't have done it faster because of environmental compliance.

Mr. OWEN. There is a domino effect that brought us to this new revised date of 2003. The Congress deleted military construction moneys requested in fiscal year 1993 for the Anniston plant which delayed the Anniston plant until possibly 1994. That caused a domino effect to push the other plants further out until we start construction of Anniston.

We were attempting to let too many contracts and construct too many plants in one year, upwards of four plants in one year.

That caused DOD in their budget reviews to look at affordability in light of this Anniston-driven delay and DOD elected to go with a stretch-out of several years for affordability reasons and what not. So one caused the other; yes, sir.

Mr. MURTHA. It wasn't driven completely by environmental restrictions. It was driven by a combination of affordability and environmental considerations?

Mr. OWEN. Yes, sir. There is one particular environmental consideration there with the real impact as we hold at Anniston to await the National Research Council Alternative Technology Study, that puts on hold Alabama's willingness to issue a RCRA permit. They do not plan to hold the mandatory public hearing on the permit until after they have received the Army's report in December 1993.

That is one of the environmental considerations.

The breakout of those dollars, \$700 million is the cost of the stretchout of 3 years. About \$300 million is estimated to be inflation and extended overhead and \$400 million of that would be several new requirements such as the cost of maintaining an Emergency Preparedness Program, additional JACADS operational requirements and the Non-Stockpile Chemical Materiel Program requirements.

COST OF "NON-STOCKPILE" DESTRUCTION

Mr. MURTHA. You have in this estimate all known costs; in other words, this is it? You don't have anything left out of this that you know is going to increase the cost down the road?

Mr. OWEN. As best we can at this time, sir. There are a couple of unknowns still out there. One is naturally the non-stockpile program. I think you have a full appreciation for that. We don't know what all we will uncover and what the ultimate price tag will be for that.

Mr. MURTHA. That could cost another billion dollars; is that correct?

Mr. OWEN. That estimate is probably as good as ours. It will be a period of time before we can flesh that number out, but we will put

that on the table when we submit the final Survey and Analysis Report to Congress this fall.

That is probably as good as any right now. That is for non-stockpile.

There is another potential figure out there that we are not certain of yet and when we finish operations in a plant, we will have a two-phase closure of that plant. Public Law 99-145 says we will dispose of these plants when finished.

The first step of closing a plant is to sanitize it or semi-lay it away, take out the equipment that is salvageable.

Phase 2 is still somewhat of an unknown, the actual demolition costs of destroying the plants or dismantling them. Most will be very expensive and difficult to demolish.

The Tooele plant will be extremely expensive and time consuming to tear down.

Mr. DICKS. Is there a real reason to do that?

Mr. OWEN. The law, sir.

Mr. DICKS. The law can be changed. Is there any substantive reason for doing it? Could we put a fence around it and leave it there?

Mr. OWEN. We could sanitize the inside of those plants. I think in the local communities there is a tremendous potential for meeting with a great deal of local opposition to the thought of a government-owned potentially hazardous waste incinerator in those communities once we are finished with the chemical stockpile, sir. That will be one of the biggest obstacles to leaving the plant in place.

Mr. DICKS. How much is it going to cost?

Mr. OWEN. We cannot give you a final figure. Right now we estimate with eight plants in the United States that it will cost approximately \$40 million per plant just to sanitize and semi-lay it away. You get into demolition costs and they are bound to be greater than that.

Mr. DICKS. You have to have an estimate. The Department always has an estimate for everything.

Mr. OWEN. Could be another \$300 million.

Mr. DICKS. Per plant?

Mr. OWEN. Total for 8 plants, \$300 million for demolition.

Mr. MURTHA. My experience with a small tract of land in Apollo, Pennsylvania was \$60 million for 7 acres. So I don't have any hopes that this estimate is anywhere near accurate.

Now, one of our former Members thought we could use these plants for something else. But your point is that the communities don't want them to be used for hazardous waste disposal. They want it to be gone once it is closed and the law clearly stipulated it has to be destroyed unless we change it. That is something we will have to look at and the costs will have a bearing on that. When do you plan to have the work completed?

Mr. OWEN. In the year 2003 will be the last plant that we will be wrapping up disposal operations. We will have some demolition and closure operations under way before that date.

Each plant has a closure date that has been determined. The earliest date—we start closing that plant as early as 1995, which will be JACADS in the Pacific.

In CONUS, the earliest closure operations would commence in April of 2000 with the last closure operation commencing in April of the year 2003.

General BUSBEE. This unknown in the program concerns us. We have commissioned a detailed engineering study that is under way that information will be available to us this year.

It is being done by Stone-Webster Engineering Corporation. We will have a better handle before we submit the revised life cycle cost estimate for next year's budget. We want to get a cap on this as well, sir.

Mr. MURTHA. Mr. Dicks?

COOPERATION WITH RUSSIA

Mr. DICKS. Tell me a little bit more about how we are going to work with the Russians on this. I read in your statement that the United States and the Russian Federation of Scientists have an agreement for joint cooperation. How is that going to work?

Dr. RICHARDSON. There were four things agreed to in that agreement. One was to assist in the development of a concept plan for the total Russian Destruction program. One was to provide a set of detection and monitoring equipment for a destruction site if they desired it.

A third item was what was called a familiarization program, a matter of having on-the-job training of Russians in our facilities; and then the last one was visits by Russians to our facilities, and if requested and viable, in turn us going there and assisting with educating people on their sites.

The activities so far on that has included three visits by Russian delegations to the U.S., touring General Busbee's operations at Edgewood, Tooele, and in one case out to Johnston Island. The stickiest problem in that is the idea of a concept plan.

As I mentioned, the Russians have had great difficulty themselves in that area to the extent of the local population, the regions bank activities on chemical weapons transport and destruction, and that greatly complicates the situation.

We hope to establish a presence in Moscow, a small office there. We hope to co-locate that with the Russian workers so that we can get more detail and thereby find out how we can help. We know, for example, that they have a requirement for an environmental baseline survey, a 15-kilometer radius around Cheboksary, one of the sites they had hoped to do destruction.

Maybe we can help them plan that activity. We know they have planned to move chemical munitions to sites by rail, yet they have been pretty much shredded in the Moscow press on the condition of the Russian railroads.

Certainly transportation should be studied. I think overall the Russian Destruction program will not go quickly. It will not be a copy of the Iraqi situation that we talked about a few minutes ago. I believe it is going to take some of the same environmental studies, tradeoff studies, environmental impact statements that our own program went through in the early eighties.

The way that is working is on our side. I, with a lot of support from General Busbee, his staff and others, deal with a committee

set up by President Yeltsin headed by Anatoly Kuntsevich, a retired three-star colonel general. We hope to meet with them next week.

Mr. DICKS. General, what is your view of this?

General BUSBEE. Since I have been involved in the United States Disposal program, I have had four counterparts in the former Soviet Union.

Mr. DICKS. Where are they now?

General BUSBEE. I don't know what their fate is. I am with my fourth one now so I must be doing something right. It has taken a good deal of time for the Russians to get their house in order, I think, with respect to understanding the complexity and the political and public interest that we are going to have to deal with in the new environment of democracy over there. So we have been most forthcoming with them in showing them all of our experiences.

Mr. DICKS. How do you deal with the press?

General BUSBEE. We are sharing all of our experiences with them on dealing with the press, and environmental interest groups; how you put together risk assessments, and deal with their elected officials.

They brought three members of the Supreme Soviet on their recent visit we had and we had a constructive dialog. They are putting together a program and selecting technology. We are not trying to sell them the U.S. technology program.

Mr. DICKS. Have we spent any Nunn-Lugar money yet on this to give them a start?

Dr. RICHARDSON. Of the \$25 million in this account, only about \$2 million has been obligated and actually spent. It is a little under \$500,000.

Mr. MURTHA. Let me correct the gentleman. This Committee is the one that put the money in the supplemental. Nunn-Lugar did not put in the money.

It is not a Nunn-Lugar provision. It is a provision of this Committee.

ALTERNATIVE DISPOSAL TECHNOLOGIES

Mr. DICKS. We will always call this the Murtha fund from now on.

The fiscal year 1993 Defense Authorization Act required the Secretary to submit to Congress a report on alternatives to the baseline disassembly and incineration process for the disposal of chemical weapons. What are the current milestones for the completion of this report? Who is doing this study?

Mr. OWEN. The National Academy of Sciences' National Research Council—

Mr. DICKS. That is about a 10-year deal?

Mr. OWENS. It is a slow process, but we have worked closely with them and they have expedited their work as much as possible. General Busbee can give you the details of the milestones. We expect a report soon.

General BUSBEE. The major committee report will be released in June. The National Academy is putting together a public outreach program. They intend to hold public hearings and meetings to release that information to the public.

Mr. DICKS. What alternatives are being considered?

General BUSBEE. Every conceivable—there are six categories of alternatives to incineration that that committee has viewed thus far. They will issue a final report with any recommendations to the Army in November of this year so that we can come to the Congress and inform the Congress if the mandates of alternatives for the low volume sites offers a reasonable prospect and still meet the deadlines imposed by the Congress and that the administration already had established.

Mr. DICKS. Will the report address costs and schedule risk associated with proposed alternatives?

General BUSBEE. The final report in the fall to the best of our ability will address cost and schedule risks. The National Academy is not providing detailed cost estimates and implementation estimates. That is not their area of expertise and they readily admit that.

Mr. DICKS. So you are going to have to provide that part; right?

General BUSBEE. Yes, sir. They will provide us the information on the technology, their state of maturity and recommendations for application. It then becomes the Army's job to translate that into programmatic and cost.

Mr. DICKS. Do you expect this study to result in changes to the current disposal plan?

General BUSBEE. I think it is likely they will make recommendations for improvements to pollution abatement systems. We meet with them for the first time Friday of this week. They may recommend some alternatives for what we call the agent-only sites where we have only bulk agent. We will have to wait to see that report, sir.

INTEGRITY OF THE CHEMICAL WEAPONS STOCKPILE

Mr. DICKS. Last year's authorization required the Secretary of the Army to submit a report by May 1993 on the physical and chemical integrity of the chemical weapons stockpile. What is the status of this report?

Mr. OWEN. We anticipate that that report will actually be ready to be furnished to the Congress on or about June 15, versus May 1.

Mr. DICKS. What will the report conclude with respect to the safety of the current stockpile now and in the future?

General BUSBEE. Mr. Chairman, I have seen the draft of that report only. They are basically saying for the near term, which they define as two years, and for the mid-term, defined as through the year 2004, that they have seen no degradation in the existing stockpile that would cause an alarm or increased risk or hazards within that time frame; that is between now and the year 2004.

They have looked at various accident scenarios that we need to work with the States and the local communities in our cooperative efforts for emergency preparedness planning to ensure that we have measures in place to guard against a low-probability accident,

but one that could be of concern and could potentially cause either environmental harm or harm to people off the military installation.

CRYOFRACTURE ALTERNATIVES

Mr. DICKS. What about the cryofracture alternatives? Where do we stand on that?

Mr. OWEN. We have basically finalized our design verification testing in cryofracture.

Mr. VISCLOSKY. Could you define what the process is?

Mr. OWEN. That is a good question. The alternatives technology study by the National Academy is truly an alternative to the basic technology of incineration.

Cryofracture is the same basic technology as we have on Johnston Island and Tooele because its ultimate disposal methodology is incineration. Cryofracture is a change in the front-end processing or loading of munitions into the plants.

Currently, in the baseline program, we take a fully uploaded munition or projectile, say a 155mm-artillery round, and take it in the plant and remove the fuse, the burster and burster well, drain the agent and then treat the projectile metal parts in a metal parts furnace; we take the liquid agent that was drained and process it in the liquid incinerator, take the dunnage it was packed in and put it into a dunnage incinerator, and finally take the explosives, fuses, and other energetics that were in the projectile and put those into a rotary kiln deactivation furnace for destruction.

With the cryofracture process, you dip the whole unassembled munition in a very cold bath of liquid nitrogen, several hundred degrees below zero, freeze it, embrittle it, bring it out, and put it into a thousand-ton press, smash it into pieces and feed all of that (the energetics, the frozen agent, the metal parts, the dunnage,) into one very large rotary kiln incinerator.

You still have a smoke stack out the back end of the plant with a pollution abatement system attached to it.

Mr. VISCLOSKY. Is it based on the technology from an environmental standpoint or it makes the process more cost effective or a combination of both?

Mr. OWEN. We are looking at it and it is argued by the proponents of cryofracture that you would realize some operating efficiencies.

You would be able to move more munitions through at a faster rate, accomplish the job earlier. That is the basic argument for cryofracture. I will let General Busbee add any additional comments.

General BUSBEE. The safety and the environmental requirements are identical. There is no differentiation. We are measuring the cryofracture technology development program against the same safety and environmental requirements we have in the baseline program.

Mr. MURTHA. This was one of the alternatives we insisted on. We kept working with the Army over the years trying to see if there was another way because the current process is such an expensive one.

Mr. OWEN. We are finishing up the design verification tests for cryofracture. We have completed operational verification tests for our baseline JACADS plant. We are going to compare the two and by approximately July 1, we will be in a position, using the Army decision process, ASARC, to make a formal decision as to whether or not we should proceed with the construction of one cryofracture plant or not.

If we decide to build a cryofracture plant, we would build that plant at Pueblo, CO. That is the site where the munitions are best configured for a cryofracture plant in our opinion.

We would avoid having a duplicate plant at Tooele, UT. All work is under way for that decision to be made in the July 1993 time-frame.

We are doing certain environmental documentation work for the cryofracture plant, if need be. We are doing process design and facility design for that plant as we speak.

Mr. LEWIS. If a decision is made to go ahead, what is the impact on the budget?

Mr. OWEN. We believe at this time there would be some additional MILCON costs, probably brick and mortar, for a cryofracture plant—at this time, I don't believe I am able to tell you exactly how much we estimate that to be. There may be a little bit of program schedule slippage at that site to allow us to catch up and get a cryofracture up and on line.

We may make some of that up maybe in some of these operating efficiencies where we end up destroying the stockpile agents faster.

Mr. DICKS. Who will make the decision?

Mr. OWEN. I co-chair the Army Systems Acquisition Review Council with the Vice Chief of Staff of the Army. We would pass the decision along to the Secretary of the Army and we anticipate the OSD would be well aware and would be endorsing our decision. It is a major decision and would be endorsed above my head.

Mr. DICKS. Cryofracture, can you dispose of all chemicals with that, everything?

General BUSBEE. Yes, sir. Our test programs to date are successful, showing that we could use it for all munitions. We only have one type of munition at Pueblo, CO. We have demonstrated with simulated munitions in the test program that the techniques are adaptable to each munition type and agent in our stockpile.

Mr. MURTHA. Mr. Livingston?

RUSSIAN CHEMICAL WEAPON DESTRUCTION PROGRAM

Mr. LIVINGSTON. When can we reasonably expect to get rid of these munitions and when can the Russians expect to get rid of their munitions?

Mr. OWEN. We have every intention to dispose of this Nation's defined stockpile by the year 2003 and we believe we can do it. We still have the non-stockpile chemical warfare materiel that is very much an unknown at this time. When we will identify and gather that all up and determine how we are going to dispose of it, that is still an unknown. I would defer to Dr. Richardson on the Russians.

Dr. RICHARDSON. From the Russians I have heard 2015, 2010. I have heard things on actually meeting the entry-enforced date—

ten years after entry and force of the Chemical Weapons Convention which calls for you to destroy them within ten years. I see no hope of meeting that date, which would be 2005. The short answer is, the don't know and we don't know.

Mr. LIVINGSTON. Thank you.

Mr. DICKS. Does anyone worry about us destroying ours and them not destroying theirs.

Dr. RICHARDSON. I will begin an answer to that and invite General Busbee to add—the vast majority of our material we were always going to destroy anyway. We had plans years ago to destroy the unitary stockpile, which is the bulk of the stockpile.

General Powell has said many times, as recently on March 15, that we can deter chemical attack by use of conventional means. Iraq is perhaps an example of that. No one quite knows why Iraq didn't use their chemical capability on our forces, but the general conclusion is that they decided the price would be too high.

I would say no, we are not worried. I worry much more about the smaller, particularly, Arab countries. North Korea was mentioned, that sort of thing. Russia had the capability for the very large, full-scale attack that could go on and keep agent dispersed for weeks and months at a time. Other countries have a smaller stockpile, but the more likely event of their use is in Arab countries.

Mr. OWEN. If I might qualify my answer to Mr. Livingston on our ability to destroy the U.S. stockpile by 2003, we are currently on schedule to do that.

There is one large unknown. If the National Academy of Sciences' Alternatives Technology Committee recommends that we proceed with an alternative technology, that could become a monumental monkey wrench in our program. The public demand for us to pursue what the Academy has recommended, that is an unknown still.

Mr. LEWIS. In response to my earlier question about the budget, you suggested a possible MILCON requirement if we decide to go forward with cryofracture.

I hear that one of the major problems in the Soviet Union involves huge amounts of mustard gas, that we may have difficulty in that subject area.

The question comes to mind, are there alternative approaches to the use of cryofracture besides the Army program? Are we looking at the private sector for either contracting purposes or using contractors for helping with the Soviet circumstance?

Dr. RICHARDSON. We certainly are looking at use of private contractors in the Russian program. The Russians have at times indicated the technology they would use would be neutralization, then incineration for phosphate or nerve agents.

They have a considerable stockpile of lewisite, 7,000 tons in Kambarka. For lewisite, they have expressed strong and continuing interest in extracting the arsenic from lewisite in a high purity form which could be used for gallium arsenide computer chips.

They have talked about a small amount of direct incineration at Gorny, Saratov Oblast, where they have a mustard-lewisite mixture. They have looked at the cryofracture procedure. They have visited General Atomics, the company involved in that.

Informally, some of the Russians said we have no use for it.

Our judgment is that what cryofracture does in part is to remove the disassembly process that is at the front end of our system.

The Russian systems, they say, do not have energetics, do not have explosives in their rounds. That would diminish some of the advantages of the cryofracture process. While they have stated the technology I mentioned—neutralization, incineration, getting arsenic out of lewisite—in the brief plan they put together late last year, they have continued to look at hypothetical technology.

I asked about that in February and was told those technologies in the plan are just examples. Technology selection is something they have not gotten to yet, and that should be an important item once they get some of the process work on sighting, where can they put it regardless of technology.

Mr. HEFNER. Would the gentleman yield?

Mr. LEWIS. Yes.

Mr. HEFNER. You stated that you doubt the Russians would meet the deadline. I imagine a great deal of that would depend on what happens to the Russian economy. I have to believe that to them shoring up their economy would take priority before they destroy any chemical weapons they have. Would that be a fair assumption?

Dr. RICHARDSON. I think it is a fair assumption. Again, because the program is so ill-defined, any estimate of the cost is not very useable at the moment. They have guessed their program might cost \$15 billion, which, as you say, is a significant investment there.

I did see for the first time on April 20 President Yeltsin's press office put out a statement asking the local republics to work with the Russian Federation Government's ongoing environmental things to get the process going; but it will take a lot more political capital, priority, and interest to get it going.

Mr. MURTHA. Mr. Darden?

CHEMICAL ANTIDOTES

Mr. DARDEN. In Marietta, there is a factory where they make syringes which are antidotes to chemical weapons. They were going great guns during the Gulf war. It had a spring on it so you put the syringe on you and the spring goes off and it goes all the way through seven or eight layers of clothing.

With your help, we got about a five-year supply, so I don't think they will be buying any more of those syringes any time soon, but it is amazing how such a very small part of a very specialized area like this contributes so much to the economy.

We are talking about conversion and these jobs are going, but you never see reports until you start seeing these plants close down and jobs lost. General Busbee, I think you are probably the right person to answer this.

General BUSBEE. I am from Georgia as well.

Mr. OWEN. He only uses that at income tax time.

DISPOSAL OF UNITARY STOCKPILE

Mr. DARDEN. I wanted to ask you very briefly, we were already scheduled before any treaties or anything else to do away with our unitary stockpile, were we not?

General BUSBEE. Yes, sir.

Mr. DARDEN. How is that coming?

General BUSBEE. We have started at Johnston Island and have made significant progress. We will begin disposing of that unitary stockpile at Tooele in calendar year 1995. That will be the first disposal facility operating in the United States.

We have approximately 30,000 agent tons to destroy. A little less than half that is at Tooele, Utah. That is our flag ship operation. We are confident, with the caveat Mr. Owen indicates, that with the technology we have we can dispose of that unitary stockpile and meet the U.S. treaty requirements, that is by 2004 or 2005 which is 10 years, Chemical Weapons Convention is expected to enter in force. Our program is capable of doing that we believe.

Mr. DARDEN. Is there a totally different procedure required for the binary stockpile?

General BUSBEE. I was the binary project manager for that program. They were designed to be destroyed easily. We will be able to dispose of them five years after entry in the force because the components are not as hazardous.

Binary weapons disposal, which is required under the international convention, will and can be done in parallel with our so-called unitary stockpile.

Mr. DARDEN. In the unfortunate event it was decided we needed to institute production of binary weapons, would we be able to do that with a relatively small degree of expense?

CHEMICAL WEAPON DEFENSE

General BUSBEE. No, sir, because the CWC requires us to destroy the production capability in addition to the munition. So the DoD, the United States has taken on a defense-based posture.

We need our soldiers, our airmen, men and women in the armed forces to have the full capability to be able to defend against chemical warfare. Therefore, the issues Dr. Richardson highlighted are very important, the issue of atropine injectors for self-protection when you go to basic defense posture.

We need that level of protection during this period of transition while we are trying to get all the chemical weapons possessors of the world to get rid of theirs like we are doing.

Mr. DARDEN. From the billion dollars or more we spent on chemical weapons generally, hasn't more than nine-tenths of it gone for defensive mechanisms and systems?

General BUSBEE. Yes.

Dr. RICHARDSON. As I recall, it was roughly a ratio of 10 to 1. We do invest in the vicinity of \$500 million to \$600 million a year in chemical defense. The Binary programs never approached that.

I would like to express my sympathy on the injector thing. We had two manufacturers of those. You make them and you have a lot of them. We had looked at keeping those sources in business through a maintenance contract in which they keep the line working and with appropriate minimum sustaining rate contracts.

My impression from talking to the companies is that a decision was made that there was insufficient payback in that. They will

compete from their Netherlands' installation on some of our medical needs, but that doesn't help you and your constituents.

Mr. DARDEN. I thought it was interesting it had such a narrow application and affects so many people.

Mr. MURTHA. Unless there are other questions, we will adjourn.

Mr. Owen, I know there is a strong possibility you won't be with us again, but we appreciate your work and your frankness with the Committee. We have always found you to be completely above board and we appreciate your talent.

General, I know you have been in this job a long time and I know that has to hamper your promotions some. You have done an outstanding job and we appreciate your dedication to this program because we think it takes somebody who has a historical knowledge and you have done a real service to the country.

We hope that it doesn't have any impact, but I know that when you specialize in a field, that sometimes it does. If it does, we feel bad, but we think your service to the country has been outstanding. We appreciate your dedication and hard work in this area.

General BUSBEE. I appreciate that, Mr. Chairman, and thank you for your support and the rest of the Committee.

Mr. MURTHA. Thank you, Gentleman. Please answer the questions for the record. The committee will adjourn until 1:30 this afternoon.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

JACADS (JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM)

Question. Dr. Richardson, the technical and cost problems associated with the Chemical Demilitarization continue to plague the Department. We realize that it is a very complex job, but this committee is continually frustrated by those problems and the department's reluctance to seriously consider cryofracture technology as an alternative. On the issue of program costs, I understand that you are projecting an increase of about \$700 million which would put the overall cost for destruction of the stockpile inventory at \$8.6 billion. Is this estimate based on the revised processing rate data from JACADS or the original estimates on processing rates?

Answer. No, this estimate is not based on revised processing rate data from JACADS. A detailed evaluation is underway to review the JACADS processing data and make the necessary adjustments to the current operating scenarios. This effort will be completed late this year.

Question. The GAO report completed in January of this year raises concerns that the JACADS Operational Tests (OVT) which ended in March, fail to provide a realistic picture of the performance of the plant under planned full operation conditions of 3-shifts per day. Have changes been made to the evaluation of the JACADS OVT data so that a realistic estimate of plant performance is possible?

Answer. Yes, during the OVT test period, JACADS processed on a one-shift (8 hours) basis during OVT I and processed on an extended schedule (17 hours) during OVT II. During OVT III, the plant processed on an extended one-shift (10 hours) schedule due to

the complicated Metal Parts Furnace (MPF) Environmental Protection Agency (EPA) trial burn configuration of Ton Containers and the requirement to build up HD agent in the Agent Storage Tanks to demonstrate the full rate performance of the Liquid Incinerator when processing HD on a sustained basis. During OVT IV, the plant again processed on an extended one shift (10 hours) schedule for the OVT period but did process munitions after the OVT window to have munitions ready for next day's operations. One of the problems encountered during OVT IV, was a restriction on the number of projectiles which could be fed to the MPF because of the agent heel remaining in the projectiles after being drained on the Multi-purpose Demilitarization Machines (MDM's). The goal was to process 96 projectiles per tray but the Resource Conservation and Recovery Act limit on the agent quantity fed to the MPF restricted JACADS to 24 projectiles per tray and seriously restricted the MPF throughput, buffer storage and the processing availability of the MDM's due to the MDM's waiting for storage space after projectile drain. JACADS is a first generation facility and the only one of its kind in full operation. Expanding from single shift operations to multi-shift takes some time to build up the experience factor and develop the operations and management strategies. Since post OVT, JACADS is successfully processing 18 hours a day and operations are giving viable predictions of the 24-hour concept. The main constraint is still the limit on the number of projectiles per tray going to the MPF. This issue is currently being worked with the EPA. It should be noted that MITRE, as part of their assessment, calculated rates for 24-hour processing and an evaluation of this data is currently under evaluation in relationship to the fixes and lessons learned at JACADS for the processing of all munition types.

Question. The fourth and final phase of the JACADS OVT was the only phase in which munitions that require disassembly operations were processed. In addition to the fire that occurred in the explosive containment room in January, I understand that there were many problems with the disassembly machines. Could these problems be avoided by using the cryofracture technology?

Answer. The major problems that could be alleviated with cryofracture technology was the frothing problem encountered with a particular lot in draining agent residue from some projectiles, and the variability of the internal dimensions of projectiles. The other problems involved equipment reliability and availability, operator error, support systems, etc. It is difficult, if not impossible, to state whether another technology would not produce the same results.

CRYOFRACTURE

Question. Are there any showstoppers from the cryofracture testing program?

Answer. No. Not from the testing program.

Question. Last year, Ms. Livingstone said that some critical tests had not been completed for cryofracture. It is my understanding that all tests relevant to the stockpile at Pueblo, where you would construct the first plant, have been completed. Have the necessary

tests been completed successfully so that you can now make a decision on construction of the plant at Pueblo?

Answer. All tests that were considered critical to the technology have been successfully completed. In July 1993, a special Army Systems Acquisition Review Council (ASARC) is scheduled to provide an Army position on this cause.

Question. In response to a question from the hearing last year, the Army stated that the estimated cost of a cryofracture plant at Pueblo was approximately \$100 million more than from a Baseline technology plant. When the Committee S&I team looked into that issue, they concluded that the cryofracture plant should not be more expensive to construct. There are indications that some unnecessary changes were made in the design which significantly increase the size of the blast hardened Main Demil Building and therefore, would increase the cost of constructing the plant. If you consider the construction cost a key issue in making the decision on whether or not to construct the cryofracture plant, have you conducted a review of the design that focuses on cost reducing changes to the plant?

Answer. The shape of the cryofracture MDB is dictated by the size of the third floor (unpack area, cryo bath, and press explosive containment room (ECR)), and the height at which the press must be located to allow gravity feed of the fractured material to the press. Once the size was fixed, efficient use of the available space within the building followed. An effort is underway to try to identify ways of reducing construction costs of the MDB, although the overall size of the building will likely remain the same.

Question. In the life cycle cost analysis being done by the MITRE Corporation to compare the costs of the Baseline and cryofracture technologies, are the processing rates used consistent with the JACADS OVT data for the Baseline technology and the DVT data from the Cryofracture technology?

Answer. Yes.

[CLERK'S NOTE.—End of questions submitted by Mr. Young. Questions submitted for the record and the answers thereto follow:]

PROGRAM COST AND SCHEDULE

Question. What other program changes have resulted from DoD program and budget decisions for fiscal year 1994 (PBD-311)?

Answer. For FY1994, the budget for the Chemical Stockpile Disposal Program (CDSP) totals \$542.5M. This consists of \$433.6M for the Chemical Agents and Munitions Destruction, Army (CAMD,A) appropriation and \$108.9M for the Military Construction, Army (MCA) appropriation. The CAMD,A account is further divided into two budget activities; Procurement—\$125.5M, and Operation and Maintenance—\$308.2M. Fiscal Year 1994 scheduled significant activities are:

Continuation of systemization and operator training for Tooele Chemical Agent Disposal Facility.

Full scale disposal operations at the Johnston Atoll Chemical Agent Disposal System.

Award of the systems contract for the construction, equipment installation, testing, operations, and closeout of the Anniston Chemical Agent Disposal Facility.

Issue request for proposals for construction of the Umatilla Chemical Agent Disposal Facility and the Pine Bluff Chemical Agent Disposal Facility.

Selection, testing, and acquisition of material and equipment in support of non-stockpile operations.

Question. What compliance costs associated with current international or other agreements are excluded from your current estimates?

Answer. The treaty compliance research and development costs are budgeted in Research and Development program elements. Compliance costs for the disposal facilities include facilities and equipment to accommodate inspection teams. Other compliance costs such as travel, safety and environmental monitoring devices are programmed within Service Operations and Maintenance budgets.

Question. What are these costs like to be?

Answer. Currently \$3.5M for chemical weapons treaty facilities at Tooele Army Depot, Utah (\$1.5M) and Anniston Army Depot, Alabama (\$2.0M) are excluded from the FY94 CSDP budget submission. Service budgets include approximately \$87M for all aspects not associated with the Chemical Stockpile Disposal Program.

Question. What do your current estimates include with respect to the destruction of "non-stockpile" chemical material?

Answer. The current estimate includes approximately \$56 million for the Non-Stockpile Chemical Materiel Program (NSCMP), consisting of \$7.6 million prior to FY 94, \$28.1 million for FY 94, and approximately \$20 million for FY 95. No estimates are currently included for outyears due to the numerous uncertainties inherent to the NSCMP at this time. A separate cost estimate for the disposal of non-stockpile materiel will be submitted to Congress in the fall of 1993.

Question. What are those "non-stockpile" disposal costs expected to be and when will the program be completed?

Answer. The U.S. Army is currently developing the programmatic cost and schedule estimates for the Non-Stockpile Program. This information will be included in the report to Congress in the fall of 1993.

Question. What other things would cause the current estimates to change?

Answer. The current estimates for the Chemical Stockpile Disposal Program would change if a decision were made to build a cryofracture plant or if the program were delayed. Program delays could result from any one or a combination of the following: Congressional directions, affordability decisions, or public opposition and/or litigation. Additionally, if Congress directs implementation of an alternative technology that is not consistent with the criteria established in Public Law 102-484, the program cost and schedules could change. Phase 2 of the decommissioning program could also increase costs.

Question. When will your revised program cost and schedule be formally submitted?

Answer. A revised life-cycle-cost estimate and program schedule will be developed and validated in the spring of 1994, after the Army evaluates the National Research Council's report on alternative technologies and its impact on the program. Per Public Law 102-484, if the Army is required to implement an alternative technology process, a revised chemical stockpile disposal concept plan is to be submitted to Congress no later than 180 days after submission of the Army's report on Evaluation of Alternative Technologies. The plan must include revised costs and schedules.

APPROPRIATION LANGUAGE CHANGE

Question. The budget proposes to change the appropriation title from "Chemical Agents and Munitions Destruction, Defense" to "Chemical Agents and Munitions Destruction, Army". In addition, the appropriation is included as part of the procurement title instead of the "other Department of Defense Programs" title of the bill as has been the case in the past. Why is this change being proposed?

Answer. Congress directed that the Army be the "Executive Agent" for the "Chemical Agents and Munitions Destruction" program for DoD in earlier legislation. With a nearly seven year perspective as to the management and control of this program, the Office of the Secretary of Defense determined that for optimum management and execution of this complex program, the Army should have complete control over all aspects of the program to include total fiscal responsibility.

Question. Legislation establishing the chemical weapon disposal program stated that "funds for carrying out this (program) shall be set forth in the budget of the Department of Defense . . . as a separate account. Such funds shall not be included in the budget accounts for any military department". Is the Department proposing legislation to amend current law to make the proposed change possible? If so, what is the status?

Answer. Yes, the Department is proposing legislation to make the proposed change possible. The action is currently within staffing at OSD and OMB agencies.

Question. General Busbee, what is the impact of this change on the formulation of the Army budget?

Answer. The change to a Chemical Agents and Munitions Destruction, Army (CAMD,A) Appropriation has had little effect on the chemical demilitarization program budget for FY 94. However, severe impacts to this program and/or the Army's readiness mission and essential military construction programs are possible in the years ahead (FY 95 and beyond) especially if an alternative disposal technology is identified for low-volume sites, non-stockpile requirements are funded from the Army, a cryofracture decision is made, or resourcing of Phase 2 decommissioning. Development of new technology at low volume sites, while simultaneously proceeding with construction and operations at other sites and implementing the non-stockpile program and cryofracture project, would present a financial strain on the Army's budget which could start as early as FY 95.

Question: General Busbee, did the Army propose this change? Does the Army agree with it?

Answer. This change was an Office of the Secretary of Defense decision which was communicated to the Army in the Program Decision Memorandum 2002 and the subsequent Program Budget Decision 311. Since the establishment of the Chemical Stockpile Disposal Program, the budgeting of funds to support this national program in the Department of Defense budget (Chemical Agents and Munitions Destruction, Defense Appropriation), in consonance with Public Law 99-145, has worked extremely well.

Question: The budget also proposes to include the authority to transfer up to \$3 million between the subdivisions of the appropriation. Why is this authority being requested?

Answer. The transfer authority will provide the Army flexibility to reallocate its resources to the highest priority requirements. The dynamic nature of the chemical demilitarization program necessitates this type of flexibility if the Army is to be responsive to unforeseen requirements (e.g., Spring Valley clean up of abandoned World War I munitions) as the U.S. public and international community become aware of the non-stockpile chemical sites and pressure mounts for remedial action on an expedited basis. It would also provide a capability for the Army to react in a more timely fashion to any changes required from the Alternative Technology Study or the Chemical Stockpile Emergency Preparedness Program.

Question: What adverse impact has occurred in the absence of such transfer authority in the past? Please be specific.

Answer. A prime example is the Chemical Stockpile Emergency Preparedness Program (CSEPP). In FY 92, the CSEPP experienced new critical unresourced requirements which required Operation and Maintenance funds. At the time, the CSEPP had sufficient Procurement funds available to resource this requirement; however, in the absence of authority to transfer the funds between subdivisions, the Procurement funds could not be utilized for this purpose.

ALTERNATIVE DESTRUCTION TECHNOLOGIES

Question. What alternatives are being considered?

Answer. There are four separate areas being investigated—biological, chemical, medium temperature and high temperature destruction processes.

Question. What criteria are being used in the evaluation of alternatives?

Answer. The criteria being applied in the selection of alternative technologies is that it must be significantly safer than the baseline process, equal to or more cost effective than the baseline process, and must allow the disposal program to be completed by December 2004.

Question. Will the report address disposal/demilitarization of items other than the agent itself, like metal parts, dunnage, etc.? If not, why not?

Answer. The report will address disposal of items other than agent to include metal parts, dunnage, and explosives.

Question. Will any of these alternatives eliminate the need for any incineration at disposal sites? Please explain.

Answer. It is premature to postulate at this time results of a study that will not be completed until December 1993. (The study will not only look at programmatic alternative technologies but also assess alternative technologies on a site-by-site basis.) Therefore, it is possible. In recognition of the technical complexities, it must be noted that the disposal incineration process consists of agent destruction, energetic destruction (at all but two sites) and metal parts decontamination as well as dunnage treatment. In order to eliminate incineration, all four incineration technologies must be replaced.

Question. Do you expect this study to result in changes to the current disposal plan? What sorts of changes are possible?

Answer. There are three possibilities which could arise as a result of the alternative technologies study. The report could recommend that no changes are required in the current baseline system. Another possibility could be that the current system is sufficient to destroy the chemical agents; however, some process improvements or modifications are needed. The third possibility deals with a completely new technology to dispose of chemical agents and weapons, including energetics, metal parts and dunnage. At this point in time, it is not possible to predict the outcome of the alternative technologies study and whether or not it will result in changes to the current disposal program.

Question. The law stipulates that site preparation or construction may not be started at disposal sites until the report is submitted. What specific planned actions have been impacted by this stipulation?

Answer. The award of the Anniston Chemical Agent Disposal Facility contract has been delayed to March 1994 after Congressional review of the Army's Alternative Technologies Report.

"NON-STOCKPILE" CHEMICAL MUNITIONS

Question. As required by law, the Army recently issued an interim survey and analysis of "non-stockpile" chemical materiel. Summarize this report.

Answer. The Interim Survey and Analysis Report for the Non-Stockpile Chemical Materiel Program was written to describe the magnitude of the effort required by the Department of Defense (DoD) and to fulfill, in part, the Congressional requirement. Non-stockpile chemical materiel is divided into five categories: buried chemical warfare materiel, recovered chemical weapons, former chemical weapons production facilities, binary chemical weapons, and miscellaneous chemical warfare materiel. The report included information gathered from documentation surveys, interviews and site visits. The most significant category is buried chemical warfare materiel of which there may be 75 locations in 32 states, the U.S. Virgin Islands and the District of Columbia. Of the 75 locations, 29 are formerly used defense sites. Some of the locations have multiple sites totaling 190 in all. The Army's research indicates possible burial locations overseas, but the information was not reported because further research and consultation is required. Also, because

of incomplete data and the need for further study on the destruction processes to be used, the interim report does not present cost and schedule information. The report summarizes the management relationships between the U.S. Army Chemical Materiel Destruction Agency, which is responsible for the destruction of non-stockpile chemical materiel, and the U.S. Army Corps of Engineers, the U.S. Army Environmental Center, the Air Force Center for Environmental Excellence, the Naval Facilities Engineering Command and the Defense Logistics Agency, who are responsible for site investigations and excavation of buried chemical weapons and related materials. The information on the foreign burial sites and the programmatic cost and schedule to implement the program will be included in the final report to be submitted in the fall of 1993.

Question. On what additional aspects of this material will the Army be making further reports, and when?

Answer. The Interim Survey and Analysis Report only summarized data on the different categories of non-stockpile chemical materiel in the continental U.S. (CONUS). Information on the foreign suspect burial sites, additional data on the CONUS locations, and programmatic cost and schedule information will be included in the final report to be submitted in the fall of 1993.

Question. What is the timetable for disposing of this material? What priorities have been established?

Answer. Programmatic costs, schedules and priorities are just now being developed and will be included in the final report to Congress in the fall of 1993.

Question. What are the estimated costs of disposing of chemical material to comply with conventions and treaties to which the United States is a part? Are any of these costs included in your fiscal year 1994 budget?

Answer. Cost estimates for disposing of all non-stockpile chemical materiel is now being developed to include those efforts to comply with applicable conventions and treaties and will be included in the report to Congress in the fall of 1993. The FY 94 program includes: (1) funding (\$2.9 million) for initial planning and analysis for building demolition directly applicable to the Chemical Weapons Convention (CWC), (2) funds for NEPA Documentation (\$2.4 million) a portion of which also applies to the CWC, and (3) funds (\$.4 million) to dispose of selected miscellaneous materiel which is also required by the CWC.

Question. What is the funding and management responsibility for the various elements of the program to destroy "non-stockpile" chemical materials.

Answer. The U.S. Army Chemical Materiel Destruction Agency has been given the responsibility for the destruction of all non-stockpile chemical materiel to include that recovered from the burial sites; however, the responsibility for recovery of the buried materiel is shared by several organizations. The U.S. Army Corps of Engineers is responsible for recovery activities at formerly used defense sites. The U.S. Army Environmental Center supports the Army installation commanders for activities at active Army sites (a separate Program Manager was established for cleanup of the Rocky Mountain Arsenal in 1985), the Air Force Center for Environmental Excellence oversees activities on Air Force installations,

the Naval Facilities Engineering Command is responsible for recovery operations at Naval Marine locations and the Defense Logistics Agency is responsible for recovery operations at their installations. Costs for destruction of the binary weapons, miscellaneous chemical warfare materiel, range recovered munitions and manufacturing facilities will be funded by the U.S. Army Chemical Materiel Destruction Agency under the Chemical Agent and Munitions Destruction account. The Defense Environmental Restoration Account will be used to fund cleanup of the burial sites and the transportation of recovered munitions or on-site destruction of these munitions if the decision is not to transport them.

Question. Who is responsible for destruction of U.S. chemical material that may be located outside of the U.S.? Why was this material not addressed in the interim report? When will it be addressed? How big of a problem is it?

Answer. The interim report noted that there are possible sites overseas where U.S. chemical warfare materiel may have been left; however, at the time the interim report to Congress was submitted, our information on possible foreign sites was very sketchy and had not been verified. The National Security Council is currently coordinating and validating the information (obtained solely from a literature search) on suspect foreign burial locations with the applicable foreign governments. The CWC signed by the U.S. and some 130 countries in January 1993 requires that a signatory to the Convention that abandoned chemical weapons on another state's territory without the state's consent is responsible for removing or destroying these weapons. The best data available on suspect foreign burial locations and the magnitude of the problem will be included in the final report that will be submitted in the fall of 1993.

SPRING VALLEY INCIDENT

Question. What is the status of work being done in the Spring Valley section of Washington, D.C. where buried chemical munitions were recently found?

Answer. A Service Response Force responded on 6 January 1993, to the munitions find at Spring Valley and performed emergency removal actions, completing work on 2 February. On 2 February, the Baltimore District of the Corps of Engineers initiated Phase II operations. This phase of effort is continuing with a planned and coordinated remedial investigation of the 510-acre Formerly Used Defense Site.

Question. What remaining work needs to be done and what are the milestones for accomplishing it?

Answer. The ongoing remedial investigation includes geophysical mapping, nonintrusive and intrusive investigations and interim removal actions as required. Work will conclude with a Record of Decision which will define the need for further remediation at the site. The site has been divided into eight zones. Geophysical mapping is nearing completion for four of these zones. At this date, no need for additional removal actions has been identified. The remaining geophysical mapping is scheduled for completion in October 1993, and may identify additional removal requirements. The project is scheduled for completion in Fiscal Year 1995, but could

be completed much sooner based on the results of the remedial investigation.

Question. What has been spent on this operation to date? What appropriations accounts were used?

Answer. The funding source for all monies is the Defense Environmental Restoration Account (DERA). The Fiscal Year 1993 estimate approaches \$12.5 million.

Question. What "lessons learned" has the Army gained from this experience?

Answer. A report consolidating all 'lessons learned' to date will be published by the Baltimore District in June of this year. More significant 'lessons learned' include the importance of obtaining 'Rights of Entry' in an expeditious manner; development of baseline costs associated with cleanup to include reimbursement to the local government and citizens; importance of public relations throughout cleanup operations and the necessity to deal immediately with issues regarding disposal of non-stockpile chemical munitions.

"NON-STOCKPILE" ORGANIZATION AND BUDGET

Question. At the insistence of this Committee, the Army has created a new office to administer the Non-Stockpile Chemical Materiel Program. What is the status of this organization?

Answer. On 1 October 1992, the U.S. Army Chemical Materiel Destruction Agency was formed with two Program Managers—a Program Manager for Chemical Demilitarization and a Program Manager for Non-Stockpile Chemical Materiel (PM NSCM). The PM NSCM has responsibility for administering the Non-Stockpile Chemical Destruction Program.

Question. For the program management of this organization, the operation and maintenance budget is \$1.5 million. What does this funding level support? Is it adequate to carry out the responsibilities of the organization?

Answer. The operation and maintenance budget of \$1.5 million is for PM Non-Stockpile Chemical Materiel government staff and related support costs consisting of the following elements:

| [Dollars in millions] | |
|-----------------------------|-------|
| Labor (16 work years)..... | \$1.2 |
| Travel/transportation | .2 |
| Other support..... | .1 |
| Total..... | 1.5 |

The FY 94 budget is realistic based on past utilization, mission priorities, and the milestones established for FY 94.

Question. For the program costs, the budget goes from \$3.7 million in fiscal year 1993 to \$18.7 million in fiscal year 1994. What is the justification for this increase? What specific items of cost are included in your budget? What future year funding levels are expected for this program?

Answer. The program in FY 94 shifts to a stronger emphasis on implementation with the award of contracts to characterize the former chemical weapons manufacturing facilities, develop National Environmental Policy Act (NEPA) documentation, and award a major systems contract for acquisition, testing and fielding of a

system which can be used to destroy recovered munitions at the burial sites. The specific items of cost in the 1994 budget are:

[Dollars in millions]

| | |
|---|-------|
| Building Demolition | \$2.9 |
| NEPA Documentation..... | 2.4 |
| Small Burial Site Treatment System..... | 5.1 |
| Non-Intrusive Sampling Systems..... | 2.2 |
| Miscellaneous Material..... | 0.4 |
| NSCM Program Studies, Analysis and Integration..... | 2.8 |
| Chemical Agent Identification Sets Response System..... | 2.9 |

The estimate for the FY 95 program is about \$20 million. Out-year estimates have not been developed because the program scope has not been fully defined.

Question. The procurement budget includes \$7.9 million for this program. What specifically is to be procured with these funds and what is the justification?

Answer. The Procurement budget of \$7.9 million is to purchase equipment vital to the timely acquisition of a fieldable system for on-site destruction of recovered chemical weapons and agents as follows:

Monitoring equipment—\$0.4 million: These funds will be used to procure the environmental monitoring equipment required to support the systems being acquired and tested under the Small Burials Contract. This contract will give the Army the capability to “field” a destruction system to safely destroy chemical munitions as they are recovered from burial sites.

Munitions Management Device 1—\$1.8 million: These funds will be used to procure the equipment in which the recovered chemical weapons will be processed; this equipment is the “heart” of the destruction system being acquired under the Small Burials Contract.

Munitions Management Device 2—\$5.7 million: These funds will be used to identify and develop concepts for a device capable of containing both blast effects and agent vapors in the event that an explosively configured item accidentally detonates while being drained. It will be used by the Small Burials contractor for those instances where an explosively configured munition must be processed in the field.

Question. The fiscal year 1994 operations and maintenance budget includes \$2.9 million to begin work on destruction of chemical production facilities at Newport, Indiana and Aberdeen, Maryland. What is the overall plan for this work at each location? What are the estimated total costs for destroying these production facilities? What additional chemical weapon production facilities are scheduled to be destroyed and when will this happen? What are the milestones for Newport and Aberdeen?

Answer. The Army plans to initiate a multi-phase effort in FY 94 for demolition of facilities and structures contaminated with chemical agents, with initial emphasis on the VX manufacturing facilities at the Newport Army Ammunition Plant, Indiana, and the pilot plant in the Edgewood Area of Aberdeen Proving Ground, Maryland. The FY 94 phase is to thoroughly characterize the extent of environmental contamination in terms of agent and other toxic compounds, to develop procedures to safely remove the equip-

ment and raze the structures with minimal impact on the environment, and to determine the ultimate disposition of all rubble generated by demolition of the structures. Currently, a statement of work for awarding a contract to have the Newport Army Ammunition Plant structure demolished is being developed. These studies have not progressed to the point that a definitive schedule with cost estimate is available. The Program Manager for Rocky Mountain Arsenal is currently dismantling manufacturing facilities at that installation. At Aberdeen Proving Ground, in addition to the Pilot Plant, there are also up to 50 smaller structures which may contain residual agent contaminants. Also, there is the old BZ facility at Pine Bluff Arsenal and small structures with possibly minimal contamination at other sites such as Dugway Proving Ground. Milestones for award of the contracts to dismantle the VX plant at Newport Army Ammunition Plant and the Pilot Plant at Aberdeen Proving Ground have not been developed.

CHEMICAL WEAPON TREATIES

Question. What is the current status of the bilateral treaty with Russia and of the multilateral treaty on control of chemical weapons?

Answer. The U.S. Interagency has approved the wording of the bilateral treaty with Russia. The Russian government has not yet approved the treaty. Under the provisions of the Wyoming Memorandum of Understanding (MOU), we will have data exchanges on July 2, 1993 (for Anniston Alabama, Newport Indiana and Dugway Utah). In addition, on July 16, 1993 we will have data exchanges for all other declared facilities if both sides agree with the MOU. For the Bilateral Destruction Agreement (BDA), the U.S. must have some implementing legislation before inspections start. The multilateral Chemical Weapons Convention (CWC) was signed by the U.S. on January 13, 1993. The treaty must be ratified by 65 nations to take effect. Entry into Force will be six months after 65 nations ratify, but no earlier than January 1995.

Question. When are these treaties expected to be submitted to the Senate for approval? What are the outstanding issues?

Answer. The U.S. Interagency is working to submit the Chemical Weapons Convention (CWC) and the Bilateral Destruction Agreement (BDA) legislation to the Senate this fall (September 1993). Issues that must be considered include the uncertainty of the Russian government to ratify the multilateral treaty. We are also concerned if 64 other nations will ratify the agreement, and if they do not ratify, what will the U.S. be willing to do unilaterally? In addition there is much concern over potential Fourth Amendment rights issues within the U.S. industrial community. What implementing legislation is needed, as an example to ensure Fourth Amendment rights?

Question. What changes are being made in the chemical weapon stockpile disposal program as a result of these international agreements?

Answer. No changes are being made in the stockpile destruction program. The destruction program is implemented under Public

Law which supports the timeliness of these international agreements.

Question. What will these agreements cost to implement? What portion of these costs will be included in this appropriation?

Answer. Planning assumptions used to develop the President's 1994 Budget assume the chemical weapons stockpile in the U.S. and Russia will be verified through the Bilateral Destruction Agreement (BDA). The draft protocol for this agreement was just revised in late March 1993 and components are currently making an assessment of the cost to implement the provisions of this agreement. Two other significant BDA cost factors are what rights will the Republic of Russia exercise and when will the Russian destruction facilities become operational. Since the Chemical Weapons Convention (CWC) Preparatory Commission is just beginning to develop implementation procedures and define cost sharing among the Parties, it is premature to estimate what the U.S. cost will be to implement the CWC. Therefore, it is not possible to provide a cost estimate for implementation of the agreements at this time. There is \$86.9 million to prepare for and implement chemical weapons agreements in the 1994 President's Budget.

DISPOSAL OF RUSSIAN CHEMICAL WEAPONS

Question. What funds do you plan to obligate during the remainder of fiscal year 1993 and 1994?

Answer. To date, the U.S. has committed to providing up to \$55M to assist the Russians in the disposal of chemical weapons. As of May 1993, we have obligated \$2M. Our plans include establishing a small U.S. project office in Moscow and providing technical assistance to the Russians in developing plans and proposals. In addition, the Russians are reviewing an amendment to the agreement which will provide up to \$30M for an analytical laboratory. We believe that we should have the \$55M obligated by the end of 1994. The U.S. is also reviewing additional options for providing support and assistance to the Russian effort.

Question. What if anything, are we learning from Russian chemical weapon destruction experience and technology?

Answer. Due to the complexity of the program and the relatively limited time spent on assistance efforts, we have not yet learned anything from the Russians we did not already know. We have not made sufficient progress to benefit from Russian or U.S. science and technology to support Russian chemical weapons destruction. We have learned much about Russian government problems and the limits of Russian Federation government to impact on Presidential policies pertaining to their internal Republics. The Russians acknowledge that their populace is relying on Western technology to satisfy safety and environmental concerns.

JOHNSTON ISLAND FACILITY

Question. The 1988 estimate of the total cost of the Johnston Island chemical weapon disposal facility (JACADS) was \$298 million. Last year we were told that the estimate had increased to \$727 million. What is your current estimate and why has it changed?

Answer. The current estimate for the Johnston Atoll Chemical Agent Disposal System (JACADS) is \$737 million—an increase of \$10 million or 1.4% from last year's estimate of \$727 million. This increase is primarily attributable to increased base support costs as a result of the host activity implementation of the "full cost recovery" concept. Tenants are now responsible for paying their fair share of common support services that were originally provided by the host, such as security, fire protection and communications.

Question. Briefly summarize the results of OVT Phases III and IV and, for the record, provide the specific results in comparison to the goals outlined in last years hearing.

Answer. The results of Operational Verification Testing (OVT) Phases III and IV and specific results are as follows:

OVT Phase III was started 3 August 1992 and completed on 5 September 1992. All 67 Ton Containers (TC's) of Mustard agent (HD) on Johnston Island plus one TC of HD sludge were safely and successfully processed and incinerated. OVT III was completed within the scheduled four weeks and included a very successful Environmental Protection Agency Trial Burn for the Metal Parts Furnace (MPF) and a Government Demonstration Burn for the Liquid Incinerator (LIC) at full design rate of 1,325 pounds HD per hour. The total agent destroyed during OVT III was 115,840 pounds HD. The maximum single shift throughput goal for JACADS was established at 0.7 TC's per hour and the average throughput goal was 0.5 TC's per hour. These rates were achieved and demonstrated during OVT III.

OVT Phase IV was started 7 October 1992 and completed on 6 March 1993 with 23,978 105mm M60 HD projectiles safely and successfully processed through the reverse disassembly equipment, thermally decontaminated in the MPF and explosive components destroyed in the Deactivation Furnace System (DFS). OVT IV was scheduled to last 17 weeks but was extended to 22 weeks due to modifications made to the processing equipment and a fire in the Explosive Containment Room. OVT IV was run in three phases: one-third processing rate for eight weeks, one-half processing rate for four weeks and full rate processing for five weeks. The Projectile Mortar Disassembly (PMD) Machine during the full rate portion of OVT IV demonstrated an average of over 35 projectiles per hour versus an average goal of 56 projectiles per hour. During the last week of full rate OVT processing, the PMD achieved a sustained rate of over 61 projectiles per hour. The Multipurpose Demilitarization Machines (MDM's) demonstrated an average processing rate of over 31 projectiles per hour during the full rate portion of OVT versus a goal of 56 projectiles per hour. During the last week of full rate OVT processing, the MDM's achieved a sustained rate of over 61 projectiles per hour. The maximum processing rates for the PMD and the MDM's could not be demonstrated during the last week of full rate OVT processing due to Resource Conservation and Recovery Act permit requirements which limited the HD hazardous waste feed to the MPF. Permit modifications are being processed to allow higher feeds that were previously successfully demonstrated during the bulk mustard trials when TC's containing up to 150 pounds of residual agent was incinerated. The MPF successfully demonstrated full thermal decontamination design criteria and the DFS successfully destroyed all explosive

components and both operated in a safe and environmentally sound manner. During OVT IV, 35,485 pounds of mustard (HD) agent was processed in the LIC. JACADS is currently processing the 105mm M60 HD projectiles on a multi-shift basis.

Question. What current legislative restrictions will be lifted upon the completion of the Final Report of OVT?

Answer. The legislative restriction on obligations of FY 93 Procurement funds for Anniston, Umatilla, and Pine Bluff disposal sites will be lifted (FY 93 Appropriation Conference Report 102-1015). Also, the restriction on activities for equipment proveout and systems test at the Tooele disposal facility will be lifted (Public Law 100-456).

Question. When will OVT-based design verification for CONUS plants be complete?

Answer. The design verification for CONUS plants will be completed three months after the completion of OVT or approximately June 1993.

Question. Explain the "frothing projectile" problem which has surfaced at JACADS since the completion of OVT and what is being done to correct it?

Answer. All remaining M60 HD-filled 105mm projectiles on Johnston Island are part of Lot 1-5X. Up to half a pound of HD agent froths from a Lot 1-5X projectile when the burster well is pulled at the Pull and Drain Station of the Multipurpose Demilitarization Machine (MDM). The "frothing" is probably caused by the decomposition of HD which has been stored for over 40 years.

An agent froth collection system has been installed on all three JACADS MDM's to collect the frothing agent and pump it to the collection tanks.

The MDM's projectile stop plate was modified to accept an eductor tube to collect any froth emerging from the projectile upon removal of the burster well. The suction action of the eductor system creates a strong vacuum across the top of the projectile which sucks any agent froth exuding from the top of the projectile into a collection tank. The collected agent froth is then pumped to the agent surge tanks and then incinerated in the LIC.

With the installation of the agent froth collection systems on the MDM's and the modifications made to the MDM's agent drain systems, JACADS is now processing the M60 105mm Lot 1-5X HD projectiles.

Question. What are the expected implications of this problem on the plans for JACADS for the remainder of fiscal year 1993 and 1994?

Answer. With the installation of the agent froth collection systems on all three Multipurpose Demilitarization Machines (MDM's) and the modifications made to all three MDM's agent drain systems, JACADS has now successfully processed over 3,000 of the frothing M60 105mm Lot 1-5X HD projectiles. The M60 105mm HD projectile campaign will be completed by the end of June 1993—early July 1993. This represents a difference of approximately 60 days from the original schedule for completing M60 projectile destruction. Therefore, a two-month slippage in destruction of the remaining M55 GB rockets is anticipated.

Question. The operations budget for JACADS increases from \$93.5 million to \$107.6 million in fiscal year 1994. Explain and justify this increase.

Answer. The \$14.1 million increase in the JACADS budget from FY 93 to FY 94 is primarily attributable to the following: increased base support costs as a result of the implementation of the "full cost recovery" concept (tenants will now be responsible for paying their "fair share" of common support services that were originally provided by the Host installation); increased waste management costs as a result of 24 hour/day operations and fully funding the estimated OVT IV scheduled campaign with FY 92 funds thereby reducing the FY 93 budget requirements.

Question. What workforce levels have you budgeted in fiscal year 1994 compared to the current year?

Answer. The negotiated workforce level budgeted in FY 94 is 441 positions. This is the same workforce level as in FY 93.

Question. What other changes in operating costs are planned?

Answer. Except for the changes identified above, there are no other planned changes.

Question. For the record, provide milestones and performance objectives for JACADS for the remainder of fiscal year 1993 and for fiscal year 1994.

Answer. JACADS is currently processing 105mm M60 HD projectiles. A Dunnage Furnace (DUN) Environmental Protection Agency (EPA) trial burn is scheduled for June 1993 while the plant is in a HD monitoring mode. Upon completion of the DUN EPA Trial Burn, a programmatic decision will be made on whether to continue processing 105mm M60 HD projectiles until the Johnston Island inventory of these munitions are destroyed or start the installation of the new Deactivation Furnace System (DFS) kiln while changing JACADS from HD to GB processing. The DFS kiln is currently scheduled to be replaced in July through September 1993 while the plant is being deconned of HD agent and the monitoring system is being changed from HD to GB. Processing of MC-1/MK-94 GB bombs (bulk processing-no explosives) will commence after the agent changeover in August 1993 and run through September 1993. In October 1993, after the DFS kiln is replaced and successfully tested, GB M55 rocket processing will start (utilizing both Explosive Containment Rooms and the new thicker wall kiln) and run through January 1994. It is planned to destroy all the GB M55 rocket inventory on Johnston Island. In February 1994, JACADS will resume the processing of GB bombs and will continue until completion of the conversion of the Projectile/Mortar Disassembly's (PMD's) and the Multi-purpose Demilitarization Machines (MDM's) to 155mm M360 GB projectiles in March 1994. The PMD's and the MDM's will then start processing the 155mm M360 GB projectiles with the processing of GB bombs continuing on a downtime fill basis. This effort will continue through the balance of 1994.

TOOELE FACILITY

Question. In 1988, the life cycle cost for the Tooele facility was estimated to be \$466 million. As of the last year, the estimate was

just over \$1 billion. What is the current estimate and why has it changed?

Answer. The life cycle cost for the Tooele facility remains just over \$1 billion. The schedule for the Tooele facility has not changed, therefore, there were no associated cost impacts.

Question. What additional changes are likely to take place in the life cycle cost estimate, and why?

Answer. The life-cycle-cost estimate will be impacted as a result of the OVT results, environmental permitting actions, disposal plant closure cost study findings, and the alternative technologies report. The throughput results arising from the OVT program will modify the operational schedule. In addition, the uncertainty in the amount of time required to obtain environmental permits will have a cost impact upon the program. A closure study is currently underway to further definitize the costs associated with dismantlement of the facilities at the end of toxic operations. Finally, the impact of the alternative technologies report is unknown at this time and could have a major impact on the cost of the program.

Question. One of the reasons for previous cost increases was changes which were being incorporated as a result of operating experience at JACADS? With OVT now completed at JACADS, what additional changes are likely and what will they cost?

Answer. Approximately 95% of the JACADS lessons learned have been captured and have been incorporated into the design and life-cycle-cost estimate. Lessons learned from the construction of the Tooele facility are also being incorporated into the cost estimate. The overall budget impact as a result of the Tooele construction lessons learned is expected to be minimal.

Question. "Systemization" at Tooele will prove out the equipment and procedures before actual agent is introduced into the facility. What are the current milestones for systemization and what are the costs of this effort, broken out by fiscal year?

Answer. The current major milestones for systemization of the Tooele Chemical Agent Disposal Facility (TOCDF) are as follows:

Start of Systemization—Aug. 93.

Surrogate Trial Burns in Furnaces to Comply with RCRA Permit—May-Aug. 94.

Integrated Plant Run with Inert Munitions—Aug.-Nov. 94.

Readiness Evaluation for Start of Toxic Operation—Nov. 94.

R&D Burn to Comply with TSCA Permit—Jan. 95.

Completion of Systemization—Jan. 95.

Start of Toxic Operation—Feb. 95.

Life-cycle-cost estimate for the TOCDF systemization is \$83 million. This cost estimate is broken out as \$30 million for fiscal year 93, \$22 million for fiscal year 94, \$15 million for fiscal year 95 and the remaining \$16 million for pre-systemization activities completed before fiscal year 93.

Question. What manpower levels are expected at Tooele during systemization? What is the current level?

Answer. Average manpower level of contractors will be 394 and Government will be 21 during systemization of the TOCDF. During the current construction phase, average manpower level of contractors is 970 and Government is 29 as of May 1993. The contractor

staff level is being phased down as we approach the end of construction in July 1993.

Question. What regulatory, legislative, or other restriction could delay the beginning of systemization at Tooele and what is the likelihood that they will occur?

Answer. According to Public Law 100-456, section 118, subsection (b), sub-section (k)(1) of 29 September 1988, no activity for equipment proveout and system test at the Chemical Stockpile Disposal Program facilities can be conducted until Operational Verification Testing (OVT) at Johnston Atoll Chemical Agent Disposal System (JACADS) is successfully completed. The OVT at JACADS has been completed and the test reports are being reviewed by the Department of the Army. The review of the OVT reports will be completed by July 1993. Activities are on schedule to provide the OVT reports to Congress by July 1993. Certification of successful completion of JACADS OVT will be forwarded to the Secretary of Defense for submission to Congress in late July or early August.

Question. What are the other milestones for Tooele?

Answer. Other major milestones besides completion of the TOCDF construction (July 1993) and start of systemization (August 1993) are to obtain Toxic Substance Control Act (TSCA) permit and modifications to the Resource Conservation and Recovery Act (RCRA) permit by January 1995 and the start of toxic operations in February 1995.

Question. Congress appropriated \$39.4 million in Tooele procurement in fiscal year 1993. Why does your current budget documentation show that only \$30.4 is required?

Answer. The difference in the procurement budget for FY 93 is due to refinements to the equipment installation and depot support (reconfiguration equipment) estimates and the application of prior year funds.

Question. What is proposed to be procured with the \$5.4 million budgeted in fiscal year 1994?

Answer. The \$5.4 million is for the purchase of material handling equipment for the container handling facility, pollution abatement system components, equipment for munitions reconfiguration and engineering services in the areas of equipment documentation review and support to systemization.

Question. What additional procurement requirements are expected to be budgeted in future years?

Answer. An additional \$6.4 million is required in FY 95 for process equipment and engineering support. Minor amounts will also be required annually for major spare parts (unit cost greater than \$15 thousand) throughout the operational life of the Tooele facility.

ANNISTON FACILITY

Question. The second demil facility is currently projected to be located at Anniston Army Depot. In 1991, we were told that construction at this facility was scheduled to go from August 1992 to October 1994, systemization was to take place between November 1994 and April 1996, and operations between May 1996 and June 1999. What are the current milestones and why have they changed?

Answer. The milestones for the Anniston Chemical Agent Disposal Facility (ANCDF) are: March 1994: Contract award; March to April 1994: Limited Notice to Proceed period, for mobilization and plans development; May 1994 to December 1996: Construction; January 1997 to June 1998: Systemization; and July 1998 to August 2001: Operations. The milestones have changed as a result of changes in the planned award date and a change to the Request for Proposal (RFP), inserting a two month Limited Notice to Proceed period for mobilization and plans development. The changes were: The August 1992 award date was changed to December 1992 to complete the 100% design; the December 1992 award date was changed to June 1993 to allow for an Army Systems Acquisition Review (ASARC) decision for the release of the RFP and to allow for the receipt of the RCRA permit from Alabama; The June 1993 planned award date was changed to August 1993 as a result of requests by offerors to aid in the development of their proposals; The August 1993 planned award date was changed to March 1994 as a result of the FY 93 Defense Appropriations Act which removed \$103.5 million Military Construction, Army (MCA) funds and prohibited any construction until after the Congress reviewed the Alternative Technology Report.

Question. What would cause the estimated March 1994 contract award date to slip further? How likely is this to happen?

Answer. The March 1994 award date for the Anniston Chemical Agent Disposal Facility (ANCDF) systems contract could be delayed by the Alternative Technology Report. If this report results either in a requirement for comprehensive design changes to the ANCDF or causes the ANCDF to be placed on hold pending the assessment and testing of a destruction technology other than incineration, then the March 1994 contract award date could slip.

The award date could also slip if approvals for the requisite environmental permits (RCRA and Air) are delayed. Construction cannot proceed without approved permits. If permit approvals are substantially delayed past March 1994, then award of the ANCDF systems contract would slip.

The likelihood of ANCDF systems contract award slippage due to the Alternative Technology Report cannot be assessed. In terms of the permit, the Alabama Department of Environmental Management has stated that they will not release the draft environmental permits for public comments and public hearings until they review the Alternative Technology Report and the Army's response to Congress on this report. If this occurs, then the permits are not expected to be released to the public prior to January 1994. With this late release date, it is postulated that the permits would be issued in the March/April 1994 time frame.

Question. What is the acquisition strategy for Anniston? Include in your discussion the responsibilities of the various Government agencies and contractors.

Answer. The original acquisition strategy (AS) was approved on January 23, 1989. Revision 1 to the AS (April 1991) updated historical data. Revision 2 to the AS (April 1992) makes provision for Firm Fixed Price (FFP) construction and equipment installation within an overall Cost Plus Award Fee (CPAF) systems contract for each of the facilities after Tooele, mandates the use of the Cost Per-

formance Report (CPR) under full compliance of the Cost/Schedule Control Systems Criteria (C/SCSC), and allows for the use of incentive fee features, where applicable.

The AS calls for a CPAF cradle-to-grave systems contract (Government Owned Contractor Operated [GOCO]) for the ANCDF, with FFP contract line items (CLIN's) for the construction, equipment acquisition, and equipment installation; and CPAF CLIN's for the project management, systemization, operations, and closure. The ANCDF contract will be rated "DO" under the Defense Priorities and Allocations System (DPAS). The contract will call for the C/SCSC (IAW DODI 5000.2) to be implemented using a Work Breakdown Structure (WBS) and to be reported using the CPR. The contract will be awarded under full and open competition.

The Program Manager for Chemical Demilitarization, under the command and direction of the Commander, U.S. Army Chemical Materiel Destruction Agency, will manage the demilitarization mission at the ANCDF. The U.S. Army Armament, Munitions, and Chemical Command (AMCCOM) will provide the Procurement Contracting Officer (PCO), procurement, and legal support required to issue the ANCDF RFP and award and administer the ANCDF contract, for the life of the contract. The U.S. Army Corps of Engineers Division, Huntsville (USAEDH) will be granted Administrative Contracting Officer (ACO) authority for the construction, equipment acquisition, and equipment installation CLIN's of the contract. AMCCOM will assume ACO duties for systemization, operations, and closure at the completion of construction activities.

The AS is composed of the following family of contracts, which will support the ANCDF Systems Contract: 1) the Architect and Engineering Design Contract, a Cost Plus Fixed Fee (CPFF) contract, with Ralph M. Parsons Company, supplies the facility and process designs for the ANCDF and Title II Engineering Design services; 2) the Equipment Acquisition Contract, a CPFF contract, with Bechtel National Inc., procures the disassembly equipment for the ANCDF; 3) the Equipment Installations Contract, a CPFF contract, with United Engineers and Constructors, procures the incineration equipment for the ANCDF; 4) the Program and Integration Support Contract, a CPFF contract, with Science Applications International Corporation (SAIC), for analysis of contractor performance measurement of the ANCDF contract; 5) the Chemical Demilitarization Training Facility (CDTF) contract, a CPAF contract, with General Physics Corporation; to train all of the ANCDF personnel.

Question. Last year's life cycle cost estimate for Anniston was \$842 million. What is the current estimate and why has it changed?

Answer. The current estimated life cycle cost for Anniston is \$872 million. This \$30 million increase is primarily the inflation impact from a 9-month delay in the award of the Anniston disposal facility contract due to Congressional action that deleted the FY 93 construction funds until the Alternative Technology Report, due in December 1993, was reviewed.

Question. Last year, Congress approved \$104.3 million in procurement funding for Anniston. Your current budget shows \$170.3 in procurement funding for Anniston for fiscal year 1993. Explain this

change. From what source was this funding derived, and what is the impact?

Answer. The latest schedule delays the contract award dates for Anniston and the other follow-on sites resulting in revised FY 93 and outyear procurement requirements. As a result, surplus funds appropriated for the other sites were allocated to Anniston since it is the next site scheduled for award. FY 94 procurement funding requirements for Anniston were reduced accordingly.

Question. Why is any procurement funding justified in fiscal year 1993 when the system contract will not be awarded until fiscal year 1994?

Answer. FY 93 funds cover design engineering and long lead equipment procurements in anticipation of a contract award in FY 94.

Question. Does the fact that no Anniston procurement funds are included in fiscal year 1994 mean that all procurement requirements will be satisfied with the current fiscal year 1993 program? If not, please explain.

Answer. Yes. The FY 94 procurement requirements for Anniston will be covered from available FY 93 funds.

Question. What "strings", if any are there on obligation of Anniston procurement funding?

Answer. The FY 93 Appropriation Conference Report 102-1015 limits obligation of procurement funds for Anniston, Umatilla and Pine Bluff disposal sites until successful completion of JACADS OVT. Additionally, procurement funds earmarked for obligation on the Anniston System Contract, scheduled for award in 1994, is predicated on the State of Alabama approving a RCRA permit.

Question. Provide for the record the obligations schedule for Anniston procurement funding.

Answer. The obligation schedule for Anniston procurement funding is as follows: Prior to FY 92, \$2.0 million; FY 92, \$23.0 million; FY 93, \$5.0 million; FY 94, \$152.0 million. FY 95 through FY 98 is approximately \$43 million.

Question. Why was Anniston selected to be the second facility? Do these reasons still pertain?

Answer. The selection of Anniston as the second facility was based primarily on technical considerations. First, the most questionable munition in terms of long-term storage safety is the M55 rocket. Therefore, the second facility was to be chosen from the four remaining facilities (excluding Tooele Army Depot) that stored M55 rockets. The greatest concentration of M55 rockets is located at Pine Bluff. However, because of the peculiar inventory at Pine Bluff (no projectiles, therefore, less equipment required), a stand-alone design is required to minimize the cost of that facility. Therefore, the design for Pine Bluff is unique and more time-consuming. That reduced the options to three facilities; namely, Umatilla, Anniston, and Blue Grass. Since Anniston has the most complex mixture of munitions, it was decided to construct Anniston as the second facility; and these reasons still pertain.

Question. Operation and maintenance costs for Anniston increased from \$4.3 million in fiscal year 1993 to \$16.8 million in fiscal year 1994. Justify this increase.

Answer. The increase in operation and maintenance costs from \$4.3 million in FY 93 to \$16.8 million in FY 94 mostly results from a \$10.2 million increase for initiating munitions reconfiguration operations and depot logistical support requirements. In addition, new requirements for contract administrative services, data management support, and systems contractor project management support account for the balance of the increase.

CRYOFRACTURE PROGRAM

Question. The conference report on the 1994 appropriation directed the Army to submit a detailed justification and rationale if it decided not to proceed with a cryofracture facility. When will this decision be made?

Answer. The earliest a decision can be made as to whether the Army will construct a cryofracture facility is July 1993.

Question. What factors will be considered in making the decision?

Answer. The Army will address the following factors (in no particular priority) in recommending a cryofracture decision to the Secretary of Defense: environmental compliance, safety considerations, maturity and reliability of the technical database, costs and schedules (can the unitary stockpile be destroyed by December 2004) and program risks. Other factors which will also be considered are Congressional language and public acceptability considerations.

Question. What cryofracture testing and evaluation remains to be done? When will it be completed?

Answer. All critical testing for the cryofracture program was completed in February 1993. The remaining non-critical tests (three) will be completed by July. The evaluation of the program will be completed in June 1993.

Question. What are the current risks—technological or otherwise—that remain for cryofracture?

Answer. There are basically two major risks which remain open issues with the cryofracture technology at this time:

As pointed out by the National Research Council (NRC) on a number of occasions, the cryofracture facility has not tested one complete munition in a totally integrated cryofracture line. This is the major basic difference between the JACADS OVT and the cryofracture Design Verification Test (DVT).

Alternatives to incineration are being considered by the NRC for possible adoption to the disposal program. This report will be available to the Army by November 1993. Some of the alternatives under study are incompatible with the cryofracture process as currently designed. Also, since cryofracture technology is an incineration process, the alternative technology program could have a major impact if the NRC report recommends a nonincineration process.

Question. If a decision is made to proceed with a cryofracture plant, what is the budget impact? Please be specific in your answer.

Answer. If a decision is made to proceed with a cryofracture plant, the FY 94 additional funding requirements would be \$9.2

million, consisting of \$.4 million Procurement; \$1.8 million O&M; and \$7.0 million MCA. These requirements are in addition to the FY 94 funds already requested for the baseline Pueblo plant of \$.7 million procurement and \$2.0 million O&M, plus the previously approved \$20 million of FY 92 procurement funds for long-lead equipment. Funding levels will primarily support environmental impact statement and safety hazard analysis; continuation of process and facility designs and long-lead equipment procurement. Outyear funding requirements are under review and will likely increase in the areas of plant construction, equipment acquisition and installation costs.

INTEGRITY OF THE CHEMICAL WEAPONS STOCKPILE

Question: Last year's authorization act required the Secretary of the Army to submit a report by 1 May 1993 on the physical and chemical integrity of the chemical weapons stockpile. What is the status of this report?

Answer. The report has been completed and a draft is currently being extensively staffed and reviewed by Headquarters, Department of the Army; the U.S. Army Chemical Materiel Destruction Agency; Headquarters U.S. Army Materiel Command and major subordinate commands that have chemical storage responsibilities. The final report will be forwarded to Congress in July 1993.

Question: What will the report conclude with respect to the safety of the current stockpile, now and in the future?

Answer. The history of chemical munitions storage suggests that its safety is acceptable and this will continue in the near term. Near term is defined as one to two years in the future. Risks of storage increase over time; i.e., catastrophic external events (earthquakes, airplane crashes, lightning strikes) have more opportunity to occur over a longer time. Further aging effects (deterioration of propellants, agent and fuze components) within the stockpile lead to deleterious effects that have an increasing probability of occurring over time. Therefore, it can be concluded that the potential risks to workers and local communities associated with continued storage of the chemical stockpile will increase in the mid term (up to 2004) and the far term (beyond 2004).

Question: Which weapons and which storage sites currently face the greatest risk?

Answer. The M55 chemical rocket with GB agent-filled warheads present the greatest risk. Quantities are stored at Johnston Island in the Pacific Ocean; Blue Grass Army Depot, Kentucky; Anniston Army Depot, Alabama; Pine Bluff Arsenal, Arkansas; Tooele Army Depot, Utah; and Umatilla Depot Activity, Oregon. The M55 rockets represent the greatest risk for a number of reasons: (1) It is the only munition which has the rocket propellant section mechanically fixed to the warhead and the entire assembly including the fuze and ignition system packed in a shipping and firing tube. By contrast, the 105mm artillery projectiles and 4.2-inch mortar cartridges have easily separable propellant and fuze sections. (2) The stabilizer in the M55 rocket propellant will deplete with time. Total, or near total depletion presents a risk of auto-ignition of the

rocket. (3) Although it does not materially add to the degree of risk, 70% of the leaking chemical munitions are M55 GB-filled rockets.

Question: What impact has the lengthening of the overall disposal program had on the safety and integrity of the stockpile?

Answer. This question was essentially answered in the second question above. Restated, since we have a dynamic system; i.e., slow chemical and physical reactions taking place in the chemical munitions, the stockpile integrity and, therefore, the safety to workers and the public diminish with time. As previously indicated, the longer the stockpile exists, external events that can cause a catastrophic incident have a greater probability of occurrence.

Question: What remedial actions, if any, will your report recommend? What is the budget impact of these recommendations?

Answer. Since the final assessment report is currently undergoing extensive technical review, no specific remedial actions are available at this time. Currently, there are a number of proposed remedial actions and stockpile storage risk mitigation proposals that are being evaluated for practicality and cost effectiveness. When these are finalized, cost estimates will be prepared and funding requests submitted through appropriate channels.

EMERGENCY PREPAREDNESS PROGRAM

Question. In last year's conference report, the Army was directed to assume the lead in all affairs of the Chemical Stockpile Emergency Preparedness Program (CSEPP). What changes has the Army made in the management of the CSEPP as a result of this direction?

Answer. As a result of last year's conference report, the Department of the Army has made several changes in the management of the CSEPP. Most important, the lead role status of the Army was reinforced by agreement between the Federal Emergency Management Agency (FEMA) and the Army in a January 19, 1993, Joint Memorandum for the Record identifying a formal interagency decision-making structure. This process specifies that "the Assistant Secretary of the Army will exercise the ultimate decision-making authority" over the CSEPP.

Other changes have resulted as well. For example, the Army has assumed the lead in developing a single automation system for the program that will serve both the installation and the civilian jurisdictions. A contractual arrangement was made with Pacific Northwest Laboratories to develop the single track system, immediately after FY 93 funds became available. Quarterly meetings for the co-chairpersons of each of the six subcommittees of the CSEPP Joint Steering Committee (JSC) now take place in order to facilitate information exchange. The Army also has exercised tight control over the programming and spending of CSEPP funds. FEMA, in turn, is following its policy of requiring states to prioritize their requests for funding to ensure that the most essential emergency management capabilities are funded first.

Finally, the Army and FEMA have strengthened their partnership in this program by increasing the interaction and coordination at all levels. The Joint Memorandum for the Record reiterated the

importance of maintaining this partnership and reaffirmed the Memorandum of Understanding between the two agencies.

Question. As the program is being managed today, what are the responsibilities of the various federal, state, and local organizations involved in this program? Are there any changes planned for the future?

Answer. Within the limits of the FY 93 conference report language, the CSEPP is carried out through interagency and intergovernmental cooperation involving numerous offices of federal, state and local governments. These organizations work together to develop CSEPP policy, plans, and standards as well as training, exercises, and public education programs through the JSC and its six subcommittees.

The Department of the Army is the executive agent for the Chemical Stockpile Disposal Program (CSDP) and has been designated by Congress to be the lead agency for the CSEPP. As such, the Army is responsible for maintaining the safety and integrity of the chemical agent stockpile and must be prepared to respond to an unlikely, yet potentially serious, accidental release of chemical agent. Each of the eight Army installations that stores chemical weapons agent in the continental United States is responsible for ensuring not only the safety and security of the stockpile, but also that the on- and off-post emergency plans are integrated.

As the Army's primary federal partner in the CSEPP, FEMA is responsible for working with state and local governments in developing and implementing off-post emergency preparedness programs. Several elements of FEMA play key roles in the CSEPP. These include the Headquarters elements of the Chemical Stockpile Preparedness Branch, Chemical Preparedness Division of the Office of Technological Hazards, State, and Local Programs and Support Directorate; the National Preparedness Directorate; and several of the agency's regional offices.

The Army, through FEMA, is providing financial and technical assistance for emergency preparedness activities concerning the chemical stockpile storage locations. State and local governments have established close working relationships with the Army installations within or adjoining their jurisdictions. In addition, FEMA is working with state and local governments in developing off-site emergency preparedness plans, upgrading community response capabilities, and developing public information and education programs.

Other federal agencies involved in the CSEPP include the U.S. Department of Health and Human Services (DHHS) and the U.S. Environmental Protection Agency (EPA), whose expertise is sought to ensure that health, safety, and environmental matters are adequately addressed during the emergency planning process.

Recognizing their critical role in initial response to chemical accidents, state and local governments have assumed major responsibilities in off-post preparedness. The local government is typically able to respond most effectively and efficiently to emergencies, particularly those that develop suddenly. For this reason, planning and preparation by state and local governments have been key elements in enhancing and upgrading off-post emergency preparedness.

State and local governments also participate in all phases of the joint FEMA/Army exercise program, including exercise planning and conduct and post exercise evaluations and reviews. State and local officials develop and implement public affairs education and emergency public information programs; conduct or participate in hazard analysis; assess training and training needs and conduct training; conduct housing and demographic (site-specific) surveys; evaluate protective actions; and install and operate automation, communications, and warning systems.

Local governments have, with assistance provided under Army funded support contracts and with FEMA coordination and oversight, developed interim upgrades of their emergency response plans; completed location-specific emergency response concept plans; initiated efforts to acquire systems for emergency alert and notification of the general public; and participated in efforts to assess the adequacy of and to upgrade emergency operating centers.

Through FEMA, state and local planners are coordinating their off-post equipment requirements with the Army, so that the equipment identified for acquisition satisfies the requirements of the off-post comprehensive emergency preparedness plans. Equipment procurement for each chemical stockpile storage location has been federally funded.

The Intergovernmental Consultation and Coordination Boards (ICCBs) were established as part of the CSDP to provide a conduit for states and communities to exchange information with the Army about the disposal program. A national ICCB and eight local ICCBs were established; a governor's representative from each state is a member of both the local and national ICCBs.

The concerns of citizens and local officials about the CSDP naturally overlap those of the CSEPP. Local citizens and officials can therefore exchange information with the Army about CSEPP through their local ICCB. In turn, Army and FEMA officials can use the ICCBs to provide information to local officials.

At this time, the management structure of CSEPP is being strengthened by increasing the interaction and coordination at all levels.

Question. What levels of funding are being provided by organizations other than the Army, and for what purpose?

Answer. As part of the August 1988 Memorandum of Understanding between the Federal Emergency Management Agency (FEMA) and the Department of the Army, the Army agrees to provide technical assistance and required resources in developing and implementing emergency response plans and related preparedness capabilities. The Army is the only organization providing financial assistance for emergency preparedness activities solely concerning the chemical stockpile storage locations; however, the CSEPP is being built upon the emergency management programs of state and local governments. While capabilities vary by jurisdiction, the capabilities to respond to a CSEPP event are generally being built upon an infrastructure put in place by FEMA funding.

Question. In fiscal year 1994, the O&M portion of CSEPP increases from \$38.4 million to \$46.1 million and the procurement portion increases from \$12.1 million to \$33.1 million. CSEPP now

consumes 18 percent of the entire chemical weapon disposal budget. What is the justification for these increases?

Answer. CSEPP funding increases are due to several factors. More realistic cost estimates for communications upgrades, programmed equipment purchases that peak in FY 94, and change-over to the Defense Business Operating Fund (DBOF) concept, which increases CSEPP Army personnel costs, are the primary reasons for the increases.

Question. What specifically is being procured with the \$33.1 million requested for procurement in fiscal year 1994?

Answer. The \$33.1 million requested for procurement is programmed to purchase a variety of equipment for CSEPP installations and surrounding civilian communities to include: alert and notification devices; fiber optic upgrades; communications gear; automated data processing; Joint Information Center equipment; Emergency Operating Center equipment; and response and protective action equipment. The specific distribution of procurement funds to the states will be adjusted when updated funding requests are received from the states this summer. Of the \$33.1 million requested for procurement in FY 94, \$28.1 has been requested for use by FEMA and state and local jurisdictions.

Question. What activities are funded in the O&M portion of the budget that were not funded last year, and why?

Answer. Activities funded in the O&M portion of the budget that were not funded last year include installation of the fiber optics upgrades for CSEPP chemical agents storage facilities, upgrades to on-post Emergency Operating Centers and Joint Information Centers, and installation of a wide area network to support the Emergency Management Information System. These upgrades and modifications are necessary to provide essential emergency management capabilities for the installations and surrounding communities. There is also an increase to CSEPP installation personnel costs due to the changeover to the DBOF concept, which was initiated by the Department of Defense in FY 93. Of the total O&M request, \$12.8 million is for FEMA and \$15.3 million is for state and local jurisdictions.

Question. What future funding levels do you currently forecast for the CSEPP?

Answer. CSEPP O&M funding requirements are projected to decline the next two years and then maintain a constant level for the duration of the program. Procurement fund requirements are currently projected to decline significantly in future years. But the uncertainty of protective clothing requirements for civilian emergency responders in the event of a release of chemical agent makes the procurement funding projections tentative. They will remain tentative until contamination research and site-specific accident reviews are completed.

TRANSPORTATION OF CHEMICAL WEAPONS

Question. In last years appropriation conference, the House agreed with a Senate proposal to prohibit the study of transporting the unitary stockpile of chemical weapons from the eight storage

sites in the continental United States. What has been the impact of this prohibition on your program?

Answer. The Army's Programmatic Environmental Impact Statement and the recommended approach to ensure safe and environmentally sound destruction, strongly supported on-site disposal vice transporting to single or regional disposal facilities. To date, this prohibition on transportation studies has had virtually no impact on the program.

Question. In the absence of this prohibition, would you be making any studies of chemical weapon transportation?

Answer. The non-stockpile disposal program will require transportation feasibility as well as on-site destruction alternatives. We do not believe that any transportation studies are needed for the unitary stockpile at this time.

Question. As the cost of disposal facilities continues to increase, does it make sense to consider doing chemical weapons destruction at fewer sites? Would this not be particularly true of the so-called low density sites?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

PROCUREMENT BUDGET

Question. Last year, Congress appropriated a total of \$67 million in procurement funding for Umatilla, Pine Bluff, and Pueblo. Why has all but \$12 million of this been reprogrammed?

Answer. The revised schedule delayed the starts of construction for Umatilla and Pine Bluff from January 1994 to January 1995. In addition, the construction start for Pueblo slipped from May 1994 to January 1996. As a result, equipment purchase requirements for FY 93 were eliminated for these sites, and the funding has been allocated to the Anniston facility. There remain requirements for site specific design engineering (\$1.4 million and \$6.4 million, respectively) for Umatilla and Pine Bluff. Also, the Pueblo facility requires \$0.7 million for process design and \$3.5 million in dept support requirements for the host installation.

Question. What funding in your fiscal year 1994 procurement budget will be reprogrammed?

Answer. None. Since programmed procurements are scheduled dependent, it is impossible to predict reprogramming actions. It is assumed that the current schedule will hold.

Question. The fiscal year 1994 budget includes \$29.5 million for Umatilla and \$23.2 million for Pine Bluff. When will the system contracts be awarded for these facilities?

Answer. The systems contracts for Umatilla and Pine Bluff are both scheduled for award in January 1995.

Question. What future procurement costs are projected at each of these two facilities?

Answer. Projected future procurement costs at Umatilla are \$219 million and at Pine Bluff are \$177 million.

Question. What specifically is to be procured with the fiscal year 1994 funding for these two facilities?

Answer. The Umatilla procurement funding in FY 94 is for long-lead time equipment as well as site specific design engineering.

Specifically, \$0.3 million is for process design engineering support; \$19.5 million is for the purchase of major process equipment to include the deactivation furnace, dunnage incinerator, metal parts furnace pollution abatement system components, and spare parts. Additionally, \$9.7 million is allocated for standard process equipment to include tray conveyors, munition conveyors, blast door and gates, charge cars, and spare parts.

Procurement funding for Pine Bluff is for long-lead time equipment and site specific design engineering. Funding of \$0.7 million is needed for process design support and \$14.5 million is for the purchase of major process equipment to include the deactivation furnace, dunnage incinerator, pollution abatement system components, and spare parts. Standard process equipment to be purchased for \$8.0 million includes the blast door and gates, tray conveyors, and charge cars.

[CLERK'S NOTE.—End of questions submitted for the record.]

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